

BRITISH SOCIETY
FOR THE STUDY
OF ORTHODONTIA.

L. Church.

TRANSACTIONS

OF THE

BRITISH SOCIETY FOR THE

STUDY OF ORTHODONTIA.

PUBLISHED FOR THE SOCIETY BY

THE DENTAL MANUFACTURING COMPANY, LIMITED.


INDEX TO VOLUME I., 1908.

ORIGINAL COMMUNICATIONS.

	PAGE
BADCOCK, J. H.—Inaugural Address.—“The Study of Orthodontia.” .. Jan.	1
Valedictory Address. .. Dec.	3
CHAPMAN, HAROLD.—“On the Occlusion of the Temporary Teeth and its Bearing on Class II. Cases. .. June	2
TILLEY, HERBERT.—“The Relationship of Nasal Obstruction in Children to the Development of the Jaws.” .. April	28
WALLACE, J. SIM.—“Science and Empiricism in Orthodontia.” Feb.	12

GENERAL INDEX.

	PAGE		PAGE
Adenoids, causes of .. Feb.	9	Nasal obstruction, symp-	
Adenoids, relationship to defective development of jaws April	29	toms of April	32
Dr. Bogue's models .. Dec.	6	Nasal obstruction, treat-	
Etiology the basis of sci-		ment of April	33
entific treatment .. Feb.	13	New feeding bottle .. April	26
Expansion of arches, cases showing treatment by .. Oct.	6	Officers for 1909 .. Dec.	3
First molar, importance of Feb.	7	Orthodontia cases, new chart for April	24
First molar, question of retention of the remain-		Orthodontia models, cabinet for Dec.	5
ing one after extraction of three April	26	Occlusion, correct, how formed Feb.	10
First molar, results of ex-		Occlusion of the tempor-	
traction of Nov.	2	ary teeth June	3
First premolar, results of extraction of Oct.	3-4	Proportions of the normal dental arches June	11
First premolar, results of extraction of Nov.	5	Report of the hon. treasurer Dec.	1, 9
Growth of lower jaw .. Nov.	3	Report of the hon. cura-	
Growth of lower jaw .. Dec.	5	tor Dec.	2
Inferior protrusion treated with reversed Baker anchorage .. Oct.	5	Report of the hon. librarian Dec.	1
Malar process, growth of .. Feb.	19	Temporary teeth, removal for caries Feb.	6
Malocclusion, prevention of Feb.	9	Temporary teeth, spacing of Feb.	14
Nasal obstruction, forms of April	29	Temporary teeth, caries of Oct.	3
Nasal obstruction, causa-		Temporary teeth, under-	
tion of April	29	hung Nov.	1
		Two class II. cases re-	
		produced from case book Oct.	4



Digitized by the Internet Archive
in 2019 with funding from
Wellcome Library

<https://archive.org/details/s6867id1341542>

THE STUDY OF ORTHODONTIA.*

By J. H. BADCOCK, L.R.C.P., M.R.C.S., L.D.S.

IN rising to address you, my first words must be words of grateful acknowledgment and sincere appreciation of the distinguished honour which you have done me in making me the first President of the British Society for the Study of Orthodontia. You have among you men of wider knowledge, of large experience, of superior skill, of greater capacity, of keener enthusiasm. I could wish that you had selected one of these to preside over your deliberations. But since your choice has fallen upon me, I desire to express my deep sense of privilege and the responsibility and to assure you that while I undertake the office of President with many misgivings, I shall strive to fulfil its duties to the best of my ability, relying on your kindness to condone my shortcomings, and to help me in my difficulties.

And straightway, I must claim your indulgence ; for the gift of speech is not mine and custom prescribes an inaugural address. Even if it did not, I should be inclined, on this occasion, to beg for the opportunity ; for indeed it is very fitting that, standing as we do on the threshold of an enterprise, we should pause for a few minutes to consider of whom this Society of ours is composed, why we are here, whither we are bound, in what ways and by what means we may best attain our goal.

We are a body of men united by a common bond, interest in Orthodontia on one of its many sides, a subject which deserves to occupy, and will occupy, a much more prominent place in the profession of general dentistry than it has done in the past. We arrogate to ourselves no special knowledge or particular skill. Any one may belong to us, whether he practise dentistry or not, if only he be interested in the problems that interest us.

We are a body of students, and we are here because we feel the need of intercourse, of discussion, of mutual help and encourage-

*Address delivered at the inauguration of the British Society for the Study of Orthodontia, at the Medical Society's Rooms, by the President.

ment. We are so full of our subject that we want to talk about it to compare notes, to consult over difficulties, to weigh the value of theories and test their worth in practice, to widen our knowledge, to improve our technique.

We desire to include amongst us representatives of all schools of thought and of every point of view, for does not divergence of opinion stimulate thought and thereby make for progress? We wish to make our Society an arena wherein can be found out, in friendly and scientific conflict, the many obscure issues with which orthodontia bristles, not a stage for self advertisement or for the exhibition of those personal vanities and animosities which tend so much to obscure the light of truth.

Divergence of opinion with regard to any subject is a direct measure of the amount of ignorance prevailing concerning it. Just as in earlier days there were many theories as to the shape of the earth, and to-day as the result of patient study, all sane men are agreed upon the point; so increase of knowledge will unify our views of orthodontia. The greater the number of divergent opinions represented in our Society, the better its chances for the elimination of error and the evolution of truth. We shall all be more careful in our observations if we know that they will be subjected to the fierce fire of hostile criticism; there will be fewer loose statements and less random talk.

Where so many opinions are represented all will have a fair start in the struggle for existence, and no particular one will occupy so much ground as to choke the tender shoot of original thought. The most modest member will not hesitate to express his opinion, for where there is no orthodoxy there can be no heterodoxy.

There are some who think they see in the formation of this new Society an element of danger, a splitting up of the profession of dentistry, itself an already small speciality of medicine. I think the apprehension is groundless. Splitting does not necessarily imply disruption; it is also a form of development, a phase of growth. It is possible, nay probable, that in the near future the regulation of teeth may, in large cities, be practised by specialists. I am not the least alarmed at the prospect of such a development; it certainly will be to the benefit of the patient. By constant practice the operator will gain a facility that can be acquired in no other way, and is bound to exceed that of the general dental surgeon, just as the skill of the specialist in anæsthetics exceeds that of the country doctor, of whose practice the administration of anæsthetics forms but a small part. Nor will the general dental surgeon suffer, on the contrary, the practice of orthodontia will greatly increase. The public is fast becoming educated as to its possibilities, and in the not far distant future a good working knowledge of it will be demanded of every practitioner up and down the country.

Already there is a great awakening in the profession, and an increasing interest is shown on every side. At the meetings of the British Dental Association, parent Society and branches alike, no subject proves more attractive; and none figures more prominently in current literature.

Many of our young men, either before qualification or after, are, each year, attracted to the schools of America, largely by the facilities they afford of studying this branch of our profession to which so much more time and attention is given than in the dental schools of this country.

So when it is proposed that a Society be founded for the exclusive study of orthodontia, as needing more time and scope than could possibly be given to it by existing Societies, the idea was hailed with acclamation. The British Society for the Study of Orthodontia is a spontaneous, natural, healthy, vigorous growth, a proof of vitality in the parent, and a promise of added strength to the dental family. I believe that the older Societies will find that instead of sapping their vitality and diminishing their material, it will become an added store on which to draw.

During the last twenty years, and especially during the last ten, orthodontia, the art of practice of correcting irregularities of position of the teeth, has made great strides. Irregularities have been classified, apparatus has been simplified and standardised, treatment has been systematised, and order evolved out of chaos by the recognition of the principle that the restoration of normal occlusion is its immediate end and aim.

And for this progress the dental profession is indebted almost entirely to America, though an exception must be made in favour of Holland. Dr. Grevers, of Amsterdam, has given us, perhaps, the most scientific classification that has yet been made, but it is rather cumbrous, and for this reason has not rivalled that of Dr. Angle in universal acceptance.

The recognition of normal occlusion as the ideal of treatment is to my mind the most valuable of all these phases of progress.

When ideas are fermenting in men's minds, the process is often accompanied by the appearance of some froth, and the evolution of a good deal of gas, but it is greatly to be regretted that adherents of the occlusion principle should have pushed it to the extent of asserting on every possible occasion that any one extracting a tooth for purposes of regulation under any circumstances whatever, was guilty of malpractice and a criminal; and there is no doubt that this kind of overstatement has seriously prejudiced the so-called "New School" in the eyes of scientific men in this country and put back the acceptance of its teaching for many years.

Much of its practice is still experimental, and its theory is almost entirely unproven. Only on the publication of the results of treatment, after a period of years, in considerable numbers with models and photographs, will a verdict be possible, and it will be awaited with ever-increasing interest.

Probably extraction will, in the future, play a greater part than it does to-day in the practice of the "New School," particularly in those cases of distal occlusion taken in hand after childhood where retention is so great a difficulty.

In dealing with that large class of patients, which must exist while there are rich and poor, who can afford neither the time nor the expense incident to lengthy mechanical treatment, regulation

by extraction must still be the only course available, and if carried out scientifically, with due regard to occlusion and to the age at which extraction should be performed to attain the end desired, the result, though it must fall short of the ideal, will not of necessity fall so very far short. The dentist of the future must know both methods well.

But great as the progress has been there is an unsatisfactory element about it, it has been almost entirely in the direction of treatment on purely mechanical lines, very little, if any, has been made in the understanding of those causes which underlie dental irregularities, and until treatment is based on sound pathology, it must remain unsatisfactory and experimental in its nature.

Irregularity of the dental arches is but a symptom of under-development or mal-development of the jaw bones correlated almost certainly with impaired growth of other parts of the skull.

In the regions of etiology, pathology and prophylaxis, we are still lamentably ignorant. It is our earnest hope that we may be able to attract into our Society scientific workers in other specialities, and that labouring together in the wide fields of biology, embryology, physiology, ethnology, we may advance the science of orthodontia as our American confrères have advanced its art.

Your Council has given careful consideration to the best means of carrying into effect the aims of the Society as I have briefly set them forth and has made the following arrangements :—

1. For the reading and discussions of papers. To make the discussions as valuable as possible, it is proposed to circulate the paper before the meeting, that members may be able to acquaint themselves beforehand with the matter that they will be called upon to discuss.

2. For Clinical Evenings when methods and results may be demonstrated in the mouth, or by models, and technical points dealt with in that efficient way that is only possible in a *tete-a-tete* conversation.

3. A definite time each evening will be set apart for casual communications, when any member may present cases of interest for the opinion of those present. In order that such communications may receive an intelligent hearing, members are desired to come provided with lantern slides of their models. (Our Treasurer, Mr. Mellersh, has most kindly lent the Society a dissolving lantern, and promised his assistance in working it.) An effort is being made to find a photographer with the necessary dental knowledge who will undertake the preparation of slides for members at a reasonable rate.

4. We hope to have a library, to exchange transactions with other similar societies and to include therein works of reference. The Librarian will very gratefully receive any works bearing on the subject of orthodontia that members may be kind enough to present.

5. Last but not least we hope to build up a museum. A large collection of models properly classified from invaluable material for investigation; especially valuable are series representing the

same mouth at different ages and series of models representing the normal from infancy. We cannot have too many.

Series showing the results of treatment with apparatus attached would be very welcome, and their value would be much enhanced by models and photographs taken after an interval of some years from the date of completion.

By the test of the next five to ten years the orthodontia of to-day will stand or fall.

6. The appointment of Investigation Committees has been suggested by one of your councillors, Mr. George Campion, who is also one of the representatives of the British Dental Association on the International Dental Federation. He tells that he has been much impressed by the excellence of the work done by committees of that body, hampered though they are by distance and infrequent meetings. He suggests that much could be done by small committees appointed to investigate and report upon matters of interest as they arise in the dental world, *e.g.*, several independent workers have published methods of determining the normal arch, and Mr. Campion thinks that a committee might with advantage be formed to consider the work that has been done on this subject and report to the Society. Other subjects capable of like treatment which occur to me are Classifications and Terminology.

Of other means of furthering the work of the Society your Committee will not be slow to take advantage, and they will at any time be glad to receive suggestions from members to this end.

And so, gentlemen, we launch our Society to-night gay with hope and buoyant with enthusiasm, a good ship faring forth on a voyage of discovery, a voyage of which we hope much, but cannot see the end. Storms doubtless will arise, but so long as our enthusiasm lasts we shall weather them all, and be the more seaworthy for the experience. Allow that to evaporate, and we shall slowly sink deeper and deeper until, without honour and unregretted, we disappear beneath the dark waters of oblivion.

I beg for one more moment of your time.

You may not all know that it is to Mr. George Northcroft, and to him alone that this Society owes its inception. The Dental world was supersaturated with orthodontic interest. Mr. Northcroft made the necessary movement, and the British Society for the Study of Orthodontia crystallised out forthwith. We thank him, and hope that his labours will bear much fruit.

ORDINARY MEETING.

THE Ordinary Monthly Meeting of the Society was held in the rooms of the Medical Society, Chandos Street, on Monday evening, February 19th, 1908, Mr. J. H. BADCOCK, President, in the chair.

The Secretary read the minutes of the last meeting, which were confirmed.

Mr. George Thomson, L.D.S.Eng., of 38, Harley Street, was ballotted for and duly elected a member of the Society.

CASUAL COMMUNICATIONS.

ON THE REMOVAL OF TEMPORARY TEETH FOR CARIES.

BY MR. GEORGE NORTHCROFT.

This is a very trivial casual communication, but I thought it might interest the members. It is a case under treatment, and it shows the disastrous effects of the removal of all the temporary teeth a course advocated by some members of the profession. In thinking over the subject and seeing some of Mr. Colyer's work at the Royal Dental Hospital, I was very much struck by the admirable results he had obtained; but at the same time felt, and pointed out to him, that it seemed to me such removal of the temporary teeth would necessitate the ultimate removal of the first pre-molars. On considering this case, of which I show lantern slides, it struck me it bears out one of the fundamental principles in all cases of irregularity, namely, the necessity for the study of occlusion. This case I believe was complicated by the fact that the lower jaw was already in distal occlusion and therefore the removal of the temporary teeth merely made confusion worse confounded. It allowed the other teeth to travel right forward and so the boy had no occlusion at all; he could not bite his food. The first slide shows the case six months before I saw the patient and took the models.

The next slide shows how in six months the teeth erupted further and made the case still worse; in fact, it was going from bad to worse all the time. Even in that short time the molars were travelling forward as hard as they could, because the temporary teeth had been removed.

The next slide shows the condition in September last. I simply bring this forward as showing how the first molars can be moved back and put in normal occlusion without any very great difficulty, and you will also notice that the first pre-molars have been absolutely jumped over the lower and placed in correct occlusion. I maintain that a case treated in that manner cannot relapse. The canine and other pre-molars are bound to place the arch in correct relationship. As the case proceeds I shall be glad to bring it again before the Society.

ON THE IMPORTANCE OF THE FIRST MOLAR.

BY MR. A. C. LOCKETT.

Mr. LOCKETT, by means of a series of slides, explained to the members what he considered to be the part played by the first molar, which he characterised as the most important tooth in the denture. He also demonstrated the evil effects of the loss of this tooth in occlusion and facial contour. He hoped to elaborate the communication at some future time, and bring it forward before the Society in the form of a paper.

The PRESIDENT said the casual communications had been extremely instructive. He thought in late years dentists had learned to regard the second temporary molar almost as a sacred tooth to be kept at all costs, in order that the first permanent molar should not alter its position. He noticed that Mr. Northcroft spoke of the first molar moving forward, and he should like to ask him exactly what he meant, whether he meant that the molar moved forward bodily or merely tilted. Mr. Lockett had given food for thought. He himself was glad to say that the first permanent molar was a much more sacred tooth than it was thirty years ago, when it was the only thing to extract it on sight for the prevention of caries or almost any other reason, and even now, especially in hospital practice, it was extracted very largely. It might be justified in the case of a patient at the Hospital, a person in such a position as to be unable to afford dental treatment in later life. In the case of a child presenting itself at the dental hospital under such conditions with carious molars which could not be made to last perhaps beyond the beginning of adult life, it would be better even at the cost of some of the results Mr. Lockett had shown to get rid of the molar rather than leave the child to lose the molars in later life. Still, that was a question for discussion.

Mr. H. BALDWIN supposed that Mr. Northcroft's excellent result was produced by inter-maxillary reciprocal traction, sometimes called the Baker anchorage. With regard to Mr. Lockett's communication, he quite agreed with almost everything he said. With regard to the value of the six-year molars and the great desirability of not extracting them, when he was a medical tutor at the Dental Hospital, twelve years ago, he used to give a dozen reasons to his pupils why the six-year molars were the most valuable teeth in the head, and, therefore, the most desirable teeth to keep at all costs in regulation cases. There was one point that he had brought out in a paper read some time ago at a Branch meeting of the B.D.A. that when a tooth had been extracted there was not only tilting of the teeth on each side of it, and great damage in after years, such as premature loosening of the teeth owing to the impact of the bite coming obliquely, but also premature recession of the gum about the roots of the teeth close to the site of the extraction. In the photograph of the young man of eighteen the gum-line of the upper six-year molar was obviously very irregular and abnormal, and he should say from the look of it that already the gums had receded from the posterior buccal root of the second molar simply on account of the extraction of the six-year old molar.

Dr. J. SIM WALLACE said the points Mr. Lockett had brought forward were very well brought forward in his student days in England by Mr. Cunningham. The subject of the importance of the six-year-old molar from the point of view of occlusion was first brought out by Davenport in France and caused a great amount of interest at the time, and it was introduced into the schools in this country. He thought it was going a little too far to indicate that in this country dentists were so very far behind that they did not appreciate the value of the six-year molar, having regard to the fact that its importance had been known for over twenty years.

Mr. H. VISICK could not quite see what bearing Mr. Lockett's remarks with regard to the first molar being in the middle of the curve of compensation, the deepest down in the curve in the lower and the lowest down in the upper, had on the question of the keeping of the six-year-old molar beyond any other tooth. With regard to extraction, he should like to know the age when the six-year molar should be extracted. With regard to the spacing of the incisors, he recalled to memory two or three cases he had seen where the over-bite was very much shortened, where the upper incisors bit almost on to the gum. He did not think there was very great spacing of the teeth in that condition; indeed, it had always seemed to him just the reverse. In cases where there was great over-bite and the upper incisors were over-crowded he had seen no sign of a space, and he could not quite think what kind of case Mr. Lockett was speaking of. He thought the matter might be elucidated by the models.

Mr. LOCKETT said that in the model Mr. Northcroft had lent him there was a spacing, but he thought that spacing was probably due to a more or less abnormal frænum.

Mr. G. NORTHCROFT thought it was necessary to have a Committee on nomenclature. It was obvious that the overbite must be excessive, and there must be more space. It was clearly a lengthening of the overbite, and not a shortening which occurred when the jaws crunched together. With regard to Mr. Baldwin's question as to how the case was treated, it was treated by seeing the patient once a week while he was at school, and the present condition had resulted from a treatment of about nine months. The case was treated by inter-maxillary reciprocal traction. The boy was an intelligent boy, and used to add to the pressure of the elastic bands by screwing up the nut on the end of the D tube. The lower arch was laced to the lower incisors, and the lower first premolars were brought forward by wire ligatures on studs. He was struck at the *Conversazione* at the Royal Dental Hospital with the very good results Mr. Colyer had obtained by the removal of all the temporary teeth. The mouths were very clean and healthy, and where the molars were in normal occlusion there would be probably a fair result. But what he wished to emphasise was the danger of scorning the thing called occlusion—that if one did not recognise distal occlusion and carry out the necessary treatment there would certainly be a very bad result. The President had asked whether the upper molars had travelled bodily forward or tilted. He believed undoubtedly they were tilted, which partly gave him con-

fidence in the treatment he had adopted, because he felt that if the teeth had swung forward on their apices he could swing them back again, but if the teeth had moved bodily forward it would be very much more difficult to move them bodily backwards. Although that was not easy it could be done, and he had done it himself. By keeping a tooth upright, with the arch rigidly attached in the D tube, it was possible to keep a tooth perfectly upright, and push it straight backward without any tilting, although the tilting treatment was adopted now in the correction of many cases.

Mr. LOCKETT, referring to the President's remarks with reference to the advisability of the first molar being extracted in hospital cases for the benefit of relieving the poor, suffering from caries, admitted that that might be viewed from the standpoint of poverty but there was an unfortunate result following. From his own observations of mouths he had seen that that was not only practised amongst poor people, but that it was done commonly in the mouths of people who had money to pay. Of course, when he made an assertion such as that it did not include certain men in London and elsewhere. Mr. Baldwin had referred to one fact not mentioned in the communication, with reference to the recession of the gum. He had noticed it, and, what was more, when there was spacing of the teeth, such as that shown in one of the models, the food very often collected. With regard to Mr. Visick's remarks on the question of the compensating curve, he had mentioned the fact that the teeth occupied the positions they did for the reason that as soon as either one or more was lost the compensating curve was completely destroyed. On the subject of the spacing of incisors, he had no models to show, but he had prints of models which were at Mr. Visick's disposal. One could see that in a case such as he had shown, with all the work coming on the anterior teeth, only one thing could happen; the anterior teeth must eventually go forward. Of course, it would take some little time to do—he did not mean to insinuate that the thing would happen in five or six weeks, but that as years went on they must go out because the plate of bone was so thin there.

PREVENTION OF MALOCCLUSION.

BY DR. J. SIM WALLACE.

I have just a few words I want to say on certain precautions for the prevention of malocclusion. I happened to read in an American paper a few days ago about the early prevention of irregularities, and when I commenced to read it I found it was the early treatment of irregularities, and the early treatment was commencing at the age of six. The first thing I want to speak about is the prevention of mouth breathing. All that I am going to do is to give you a few figures. First, with regard to adenoids, what I would particularly like you to do is to find out whether the cases you come across correspond with the figures that I am going to give you. I came, from various details, to the conclusion that cold and damp air was the cause of adenoids, and from certain other considerations I thought that open windows might induce cold, damp night air to come in the children's bedrooms and perhaps irritate their nasal tract. I asked various people, just as they

happened to come, in a casual way, with regard to their habits or the habits of their children, or themselves as children, whether they slept with the windows shut or open. In 61 cases where they slept with the windows shut, one case of adenoids was found, nearly 2% ; in the case where the windows were kept open—I mean during the winter months—in 34 cases, there were 16 cases of adenoids, or nearly 50%. I have not time to draw any conclusions, but they are very obvious.

This leads me on to another matter. If you get the nose blocked during the first year, the child will not gnaw. It tends not to care for gnawing things, as I have had the unfortunate experience of finding out. The time to prevent irregularities, leaving out of consideration the nasal tract at present, is when the first two central incisors come through, say about the 7th month. The instinct to gnaw I explained once as a sort of means of transition from liquid food to solid food. If you take a piece of fruit and pierce it with two teeth, you get a hole made in the fruit and can suck it, and I thought this gnawing and sucking came about from some cause like that, but I am giving that up to a certain extent and I have a new theory. It is the first attempt of Nature to bring about correct occlusion, and if you get the child everlastingly fixing its teeth at the proper place to gnaw, the lower against the upper, you get at a very early stage the first correct relations of the teeth. If, however, you unfortunately get a child that breathes through its mouth during the greater part of the first year of its life, there is a tendency, I believe, to have what has been noticed recently, distal occlusion in the temporary set of teeth.

The PRESIDENT said that Dr. Sim Wallace had taken away the tooth brush, and now he was going to shut the windows !

Mr. NORTHCROFT was delighted to think that Dr. Sim Wallace should have laid still greater emphasis on the importance of watching cases when young, and he thought too much stress could not be laid on the necessity of cultivating the dentist's powers of observation. He thought there was a tendency to run away with the idea of the desirability of treatment only—the age when a case could be treated—whereas, as Dr. Sim Wallace had so ably pointed out, by instructing parents in the right way of bringing up their children it was possible to do away with the necessity of treatment altogether and by close observation and careful questioning of parents assist Dr. Sim Wallace and other thinkers in supporting or condemning their theories as the case might be.

Mr. LACEY, referring to the effect of damp air, asked whether it would not be possible for provincial members also to obtain statistics of a like nature. Those living in a dry neighbourhood might be able to say whether they found the children more prone to adenoids than those living in a low-lying damp district, such as the Thames Valley.

Mr. H. BALDWIN thought cold and damp air could be only a contributory cause, and that something else must be really the more efficient cause. London nowadays could not be called a very damp place ; it was extremely well-drained, better than ever

it had been, and probably adenoids were commoner than ever they had been before. The whole of the country was very much better drained than it used to be. Large portions of the country were at one time hot-beds of ague and other diseases due to sheer dampness, but those conditions had been entirely rectified. He was not aware that the ancient inhabitants of East Anglia, which was largely a marsh, were sufferers from adenoids; he did not believe they were, or that they ever had adenoids, because their jaws were so well-developed.

Mr. H. VISICK had heard it said, in America, that the cause of Class II. in the classification, usually associated with mouth-breathing was dampness, and that adenoids were much more common round the big Lake districts than in other parts of the States. Taking America as a whole, the adenoid cases were very much more frequently attended to than they were in England, and from observation, he believed that was true. In America they did not see half the number of adenoid cases that were seen here, and, of course, America, as a whole, was a much drier climate than England.

Mr. F. W. MELLERSH said there was one point of interest bearing on Mr. Baldwin's remarks, namely, that he believed neolithic man was sufficiently wise to live not on a clay soil, but in holes dug in the gravel.

The PRESIDENT asked Dr. Sim Wallace whether the ages of both the classes of cases he mentioned were approximately the same?

Dr. J. SIM WALLACE, in reply, said with regard to low-lying districts like the Thames Valley, it was recognised in books on adenoids that in those localities adenoids were most frequent, bearing out what Mr. Visick had said with regard to the Lake districts of America. Mr. Baldwin had referred to the fact that there were contributory causes, and he had no objection to that idea; in fact, he had tried to concoct two or three theories of the causes that he considered contributory, but since he had gone into the cold and damp business, he thought the cold and damp outweighed all the others. With regard to London, although it was well drained and healthier in many ways, the air at night—and it was that he was especially referring to, the cold, damp, night air—and very much the same as it was 200 or 300 or 1,000 years ago, and the same remark would apply to East Anglia, where, by the way, of all parts of England, he believed there was the driest air. He knew that children with adenoids or tendencies that way, were sent down to Margate with remarkable effect. Margate was on chalk and supposed to have a very dry air. With regard to the children, he confessed there was an element of wrongness in his statistics which he was glad had been mentioned. He found it difficult to get many statistics of children who slept with their windows closed at the present day. There were a few included in his statistics. The other ones were generally relatives of the children that had the adenoids, so that from one point of view they were very suitable, as it was class for class, and not one class against another. He had heard from a patient that she read in a newspaper that

adenoids were less frequent in the very poorest districts in London. Whether that, if true, was due to the fact that they frequently disobeyed the doctor's orders and slept with their windows closed or not, he could not say.

Dr. J. SIM WALLACE then read his paper on

SCIENCE AND EMPIRICISM IN ORTHODONTIA.

Perhaps it may be useful at the outset of our career to take a somewhat general survey of our subject with a view to seeing if possible where we stand. It may be difficult to do so, for in reading the writings of some authors we might be induced to believe that we had reached the zenith of human achievements in the science of orthodontia, whereas when we read the contributions of others we may feel somewhat inclined to think that the *science* of orthodontia does not exist, that it is in fact to all intents and purposes a *terra incognita*. Perhaps the latter belief prevails at least in this country, and I assume that it is on account of our admitted lack of knowledge of at least a great part of the subject that we have formed ourselves into a Society for the study of this science.

That the empirical art of regulating teeth has made considerable progress few will doubt, that the ingenious inventions and appliances which we have at our disposal, are fascinating because of their elegance and excellence will, I think, be freely admitted, even though we cannot claim nearly such a large share in the evolution of these appliances as our transatlantic colleagues. On the other hand, many will probably question whether we know much about the pathological or abnormal processes which eventuate in the malpositions of the teeth, nor can it be said that we are all agreed as to the causes which give rise to these pathological processes. Yet if we do not can we look on orthodontia as it exists as a science. Would any one of us attempt to treat a case of irregularity associated with mouth breathing, without removing the cause which gave rise to the mouth breathing, or at least without restoring the function of respiration through the nose. Now leaving out of consideration the fact that we are by no means all agreed as to how mouth-breathing brings about the malpositions of the teeth typically associated with mouth breathing, whether it be due to lack of development of the nose from want of function or from negative pressure, or whether it be primarily from undue pressure of the lips, and cheeks, or whether when the mouth is kept open the tongue is unable to dominate the normal developmental processes. Leaving aside all this, I say would we be acting scientifically if we allowed the cause which brought about the irregularity to continue to act during our efforts to regulate the teeth, or even after we had corrected the malocclusion. With reference to this class of irregularities Dr. Angle says : " It seems quite probable that all of these conditions have been gradually brought about as a result of mouth breathing ; at least, in a very large percentage of cases. It, therefore, becomes apparent that treatment should first be directed toward the restoration of normal breathing, and it is now the belief of the author after much experience with these cases that failures in maintaining

corrected occlusion will sooner or later follow unless normal respiration be established. Treatment of the occlusion without attention to the nasal tract is but the treatment of symptoms without removal of the cause.”*

If this be true what must we consider the scientific basis of our treatment. Assuredly it is not occlusion or malocclusion, for even though the occlusion is corrected failure will sooner or later follow if normal respiration be not restored. Surely it is evident that the cause of the irregularities and malocclusion is, or ought to be, the scientific basis of our treatment. This by implication embraces the more general truth which it is my special desire to enforce to-night, namely, that etiology is, or ought to be, the basis of our scientific treatment, not only in the 13 per cent. of cases associated with mouth breathing, but also in the 87 per cent. of cases which are not associated with mouth breathing. For if we do not remove the cause when we restore normal occlusion, or if the cause is not removed in those 87 per cent. of cases, I say emphatically that in general the corrected occlusion will sooner or later result in failure, for we shall have been treating symptoms without removal of the cause. I will go further and say that it frequently happens that the restoration of normal occlusion may still further retard the development processes which should normally help to correct the malocclusions. I will not elaborate this point at present, but would like to repeat my contention that in order to claim orthodontia as a science we must know the etiology of the malpositions of the teeth. I would like also to repeat here my conviction that “the most essential adjunct to all mechanical appliances is to have them working co-ordinately with the natural forces which regulate the teeth.”†

The next subject I desire to touch upon is the question of diagnosis, or the recognition of what exactly we have to deal with. In recent years the first permanent molar has come in for at least its fair share of attention, and rightly, too. It is now regarded as a most important tooth, not only on account of its own proper function but on account of its value from the point of view of diagnosis; it is said in fact that “the key to occlusion is the relative positions of the first molars.” Unfortunately, however, the first molar has a terrible habit of being out of its proper place. It may occlude mesially, distally, labially, &c., with its antagonising tooth. However, it is in normal occlusion, according to Dr. Angle, in about 63 per cent. of cases, and his largest division of irregularities comprise those in which the first molars are in so-called normal occlusion. It does not appear to have occurred to those who make this shifty tooth the key to diagnosis that although it may be in normal occlusion, that it can be and generally is displaced forward in both upper and lower jaw. That, in fact, there generally is a mutual lack of development in both upper and lower jaw, and that, therefore, though the mutual relations of these teeth remain correct it may

*Angle. *Malocclusions of the Teeth*. 6th ed., p. 235.

†Irregularities of the Teeth, p. 145.

be in an abnormal position in every other way. Indeed this is almost invariably the case, and if we but think how the body of the jaw is developed we see that the fact of the crowding in the front of the mouth must always invariably be the result or concomitant of the abnormal, or too anterior position of the first permanent molar and not of its normal position. Surely knowing as we do how the jaws develop we are forced to conclude that if there is crowding the anterior displacement of the molar teeth must be practically equal to the amount of crowding. Now suppose we did restore correct occlusion in a set of teeth in which the molars were in so-called normal occlusion, but in which they were displaced forwards, what would happen? Simply this, we would get every tooth in a position of similar anterior displacement to the body of the mandible or maxillæ. For it is the teeth that are moved by our ordinary mechanical appliances, and the development of the body of the jaw is in no way stimulated; indeed, the increased space allowed by the expansion of the arch prevents the tongue pressing mandible and maxillæ forward, and thus stimulating the growth of their bodies posteriorly. Now double anterior displacement of the dental arches, or rather insufficient development of the mandible and maxillæ, or perhaps of both combined, is distinctly ugly. The oral orifice is made to look large, the lips to project and the general appearance to stimulate our simian ancestors rather than the ideal man. But this is not all, nor indeed in some slight cases would it be of much consequence. But the coming into position of the wisdom tooth still further augments the ugly deformity, even though the occlusion should remain normal, which, however, it does not, at least so far as my experience goes. It may be said that an expansion arch anchored, let us say, to the molar teeth, tends to force the molar teeth back while pulling the anterior teeth forward. It is obvious, however, that the resultant of all the forces which may be got from the expansion arch cannot pull the jaws forward *en masse* and stimulate their development posteriorly. Consequently, there is no more room given into which the molars may be pressed back, and all that results is a fruitless fight against the abnormal force which actually translated the molars forward and produced the crowding anteriorly. I think it must be evident to those who recognise the method of the development of the jaws which, I think, England claims to have worked out, that pushing some teeth in one direction, and others in the opposite, does not tend to develop the body of the jaws or of the mandible at least, for there is no interstitial growth.

A somewhat similar consideration may here be referred to. The idea that the wedging of the teeth is necessary to the development of the dental arches* is wholly erroneous. Here is a model of what may be regarded as a typically well-developed arch, and you will see that wedging could have had no part whatever in its production.

It will be seen that if the spaces between the upper temporary teeth had not come into being, if, in other words, the measurement

*Angle *ibid*, p. 26.

from the mesial surfaces of the first permanent molars round the dental arch had only been the sum of the measurements of the mesiodistal diameters of each tooth, the distance would have been about three millimetres less on each side. This would represent pretty nearly the amount that the maxillæ were lacking in posterior development and, consequently, the amount of anterior malposition of the first permanent molar. I do not think that the extreme amount of anterior displacement of the first permanent molar referred to by Mr. Northcroft in a recent paper is usual. He says that the first upper molar comes "forwards and downwards till the [malar] process blends with the ridge formed by the anterior buccal root, the tooth practically occupying the position once held by the second deciduous molar."* It should be remembered also that it is not only the first permanent molar which suffer santerior displacement through the lack of sufficient posterior development of the body of the maxillæ, for under such circumstances the molar process also necessarily remains in a too anterior position; the deposition of bone posteriorly and the absorption anteriorly, necessarily not having moulded the malar process further back than the first permanent molar above which the malar process is normally placed. It should be noted also that the normal occlusion of the temporary teeth necessarily demands the existence of spaces between the upper temporary molars. The upper temporary molars being smaller mesiodistally than the under temporary molars. It should, too, be observed that the normal relation of the temporary teeth is (but for the existence of spaces between the teeth) practically identical with that of the permanent.†

Now ludicrous as this idea of wedging may seem to those who have studied the development of the jaws and dental arches, yet, nevertheless, one of the fundamental assumptions of the modern school of emperical orthodontia is this very belief that the wedging process is necessary in developing the dental arches. And what is more, the mechanical contrivances which some of the adherents of this school advertise so loudly practically all betray the belief in this primitive idea. They may be able to make an arch of teeth *appear* normal when moulds are taken of these arches. They may be able to map out a whole dental arch from the measurement of one single tooth. But what use is it if they do not correspondingly develop the base on which these arches rest and readjust or reverse the forces which, in the first instance, brought on the irregularities. Are we justified in assuming that the forces which produced an irregularity will not reproduce them a few years

*British Dental Journal, January 1st, p. 14.

†As regards the molars for examples, the second temporary upper molar is so situated that its anterior external cusp occludes (buccally) into the hollow between the anterior and middle external cusps of the second lower molar, while the posterior external cusp of the second temporary upper molar occludes similarly between the middle and posterior or fifth cusp of the corresponding lower temporary molar. The distal surface of the second upper temporary molar being very slightly distal to the corresponding surface of the second lower temporary molar, on account of the different size and shape of the teeth.

later ? When we alter the relation of certain forces, as for example, when we readjust a simple malocclusion, we expect our efforts to be crowned by success, and we expect rightly when it is simply a case of malocclusion uncomplicated with general crowding or other abnormal condition. But in most cases there is observed some other element, and a retention plate has to be employed. Does this indicate that correct occlusion will of itself keep teeth in their corrected position ? And if the force which disturbs our efforts, after we have arrived at correct occlusion, is allowed to persist after the retention plate or apparatus is removed, do you believe an irregularity will not recur ?

Gentlemen, I do not wish to say more at present, and would only like to draw my remarks to an end by saying that when we consider how intimately the etiology of irregularities is associated with the art of regulating the teeth, we must feel inclined to think that those who vaunt their methods while ignoring etiology, are surely trying to sell mechanical appliances rather than advance the science of orthodontia. Fortunately, England at least cannot be blamed for advertising mechanical appliances. For, indeed, she has produce but few that are worth advertising. But as an offset to this I will say that England has contributed the lion's share to elucidating the developmental processes underlying the formation of the normal arch and moreover has, I claim, elucidated the main etiological factors* in the production of irregularities which give orthodontia† a claim to be regarded as a science.

I will conclude, therefore, Mr. President and gentlemen, by asking you to drink, metaphorically, to the health and prosperity of the British Society for the Study of Orthodontia which has now been founded on such excellent traditions.

DISCUSSION.

The PRESIDENT said that Dr. Sim Wallace had given much food for discussion ; he had laid stress upon the necessity of science being the basis of treatment, and he had introduced a number of controversial points. He had raised the question of the position of the first molar and the question of what would happen to a corrected denture when the wisdom teeth came. He had also raised the question of the growth of the jaws and the possibility of wedging occurring. Normal occlusion of temporary teeth, again, was a

*Apart from what support these etiological factors have had in England, they have been most fully confirmed by such eminent authorities outside England as Dr. Grevers, of Amsterdam, and Dr. Bogue, of New York.

†Throughout this paper I have used the word "orthodontia." It is a word, however, that has of recent years been so debased by empiricism that it would almost seem desirable to let the word drop out of use. Moreover, the contracted meaning it is given by some authors, who seem to have no vision beyond occlusion and mechanical appliances, makes me wish for some word which might be more comprehensive. Dr. Case's word dento-facial orthopœdia is much better, even though cumbrous. We must not give malocclusion more than its proper share of attention. There is also the face, the mandible and maxilla, the nasal passages, and even the relations of the neck and thorax to be considered.

question on which there might be more than one opinion. He had also raised the question of whether operations undertaken for the correction of mal-occlusion ever acted as stimuli to the growth of the jaws, and also the question of retention. Those were all points about which there was a very great deal to be said.

Mr. H. BALDWIN thought all would agree with Dr. Sim Wallace that etiology was a very important thing to study, but of course it was a very difficult thing. With regard to cases of irregularity, which most interested dentists, and which, in England, at any rate, where the commonest, namely, superior protrusion, they thought they did know a good deal about the etiology of that. Many thought it was due almost entirely to mouth breathing, and proceeded, rationally, on etiological grounds, for they not only corrected the irregularities as far as possible, but had the adenoids removed and the tonsils attended to, and normal breathing through the nose restored. Therefore, if the paper was criticising the present position and practice of orthodontia in so far as those cases went, it was beside the mark. With regard to other classes of dental irregularities, it seemed to him there were two ; there was the slight and less important class of irregularities due to retaining temporary teeth, to premature extraction of temporary teeth possibly, and possibly to thumb sucking and things of that sort—and there, again, dentists did proceed on rational, etiological grounds by removing the cause—and there was another class of irregularities which so far as regards etiology was an absolutely closed book. It was all very well saying that one ought to proceed on etiological grounds, but how was it to be done in those cases, for instance, where the lower jaw insisted on growing to an abnormal size in spite of everything that could be done, and in the end there was a tremendous amount of the underhung condition ? the lower jaw would go on growing enormously in spite of everything. A case like that belonged to the third class of irregularities, where the etiology was an absolute mystery. It was quite correct of Dr. Wallace to insist that an attempt should be made to find out the causes, but it was a very difficult matter. He remembered Sir John Tomes once saying that the difficulty in carrying out a scientific investigation was to know what questions to ask Nature, and then Nature would always answer “ Yes ” or “ No ” when the right question was put. There were one or two other points in the admirably constructed paper which he felt inclined to cast doubt upon. For instance, Dr. Sim Wallace said in the regulating of some of the cases—and he took it he meant cases of contracted arches which required expansion, and so forth—the development of the body of the jaw was in no way stimulated by the treatment. He did not think Dr. Wallace had any facts to go upon for that statement. It was possible that the body of the jaw was sometimes stimulated by the expansion of the alveolar processes ; he had no facts to go upon himself, but he did not think it was correct to assume there was no possibility of stimulation. Then Dr. Wallace said that the increased space actually prevented the tongue from pressing the mandible an maxilla forward, thus stimulating the growth of the bodies

posteriorly—that regulating prevented natural processes from developing.

Natural processes in such cases had no tendency whatever to correct deformities. It left alone, natural processes would not assist at all. It was almost like saying “Do not fill carious cavities, because by so doing you prevent Nature from filling them herself.” Nature, of course, would not do it, and it was well known that if the arches were not expanded artificially, they remained contracted throughout the life of the individual. Then Dr. Wallace assumed that the pulling back of molar teeth by an expansion arch pulled the anterior teeth forward. Supposing that the case was treated with the inter-maxillary reciprocal traction, the anterior teeth went back almost necessarily. The arch was expanded, and the anterior teeth pulled or pushed back and the molar teeth also, if necessary. Then Dr. Wallace asked whether they were justified in saying that the forces which produced an irregularity would not produce an irregularity a few years later. There, again, his answer to that would be that in the great majority of cases the cause was removed—that was, mouth breathing had been removed—and therefore the same causes would not be found acting again.

Mr. NORTHCROFT was very much interested in hearing Dr. Sim Wallace read his paper and heartily agreed with a great deal of what he had said. Of course, as Mr. Baldwin had done before him, he must fall foul of the question of etiology. It was a little difficult to say to the patients, “Well, I am sorry I am a very ignorant man, and I cannot tell you what caused this, and therefore I am not going to attempt to cure it.” Patients were grateful for earnest endeavours for their good, and although he was all against empiricism and heartily agreed with obtaining knowledge as far as possible of the etiology, he did not think dentists should feel their hands were absolutely tied on that account. Dr. Wallace said that 13 per cent. of the cases of irregularity were associated with mouth breathing, and with regard to the other 87 per cent. he assumed nothing was known of the etiology. He thought Dr. Wallace was a little wide of the mark. There were many cases which could be called to mind where the cause had produced an irregularity and the cause was ultimately removed in the natural sequence of events, and that might occur even with the growth of a child. He had pointed out elsewhere one of the causes of the 87 per cent. of those cases which had not been so much noticed before, namely, the disorderly eruption of the teeth. Although the etiology which produced a result in that way might be known, if the lower incisors erupted at the age of $5\frac{1}{2}$ before the six-year molars, it was extremely likely that there would be an irregularity resulting, but that cause was one over which there was absolutely no control, and he was certain that it was possible to cure the irregularity resulting from such cause, the cause being removed with the growth of the child, the teeth coming in, in due time. Dr. Wallace said that the development of the jaw was in no wise stimulated by the application of ordinary regulation appliances. That depended entirely on the age at

which one started regulating, and he was confident that cases should be treated earlier and earlier. The remark was often heard, "How very clever it was of Mr. So-and-so to treat that girl of 25." It may have been very clever of him to treat it, but he did not believe Mr. So-and-so got very satisfactory results. If the cases were treated while the patient's jaw was growing, then one did stimulate the development of the jaw. He did not say that one could necessarily make the jaw grow again after it had ceased from growing, but he did think it was possible to help to stimulate the development. Mr. Baldwin had mentioned the fact that the anterior teeth come forward when the molar teeth were pushed back. With the ordinary expansion arch, if a molar tooth were assumed to be in front of the malar process, one might possibly put the molar teeth back and the upper teeth forward, if it were a Class I case, but in a Class I case one assumed the molar was in normal relationship with the malar process and that it would not need moving backwards at all. He should like to explain his position, as Dr. Sim Wallace was good enough to mention his name in reference to some remarks of his in a former paper. He had three slides which would clearly show why he took up the position he did. Dr. Wallace did not condemn him absolutely, but thought perhaps he was a little extreme in what he said. As far as he could understand it, Dr. Wallace thought that the malar process moved backwards by deposition of bone at the back and absorption of bone at the front, the molar meanwhile practically standing still; *i.e.*, that the malar process passed backwards and that the molar did not come forwards. Of course, in the development, it undoubtedly did occur that the malar process would be developed backwards, but at the same time it must be remembered that the whole jaw was coming forward in development and the molar was coming forward as well, and it seemed to him one could only obtain a correct elucidation of the problem by measuring a series of skulls from the anterior margin of the foramen magnum. That unfortunately could not be done from the same skull at birth and from the same skull at death. But it would seem that if the measurements were taken to the malar process and then from the anterior margin to the molar in a series of skulls it would be possible definitely to ascertain which had moved forward and which backwards. His own impression was that the malar process developed backwards, but at the same time the whole face was coming forward, and therefore it practically remained in the same position, and that the molar did actually come forward and occupy the space formerly occupied by the second temporary molar. He had looked at a great number of models of temporary teeth and he did not believe the spaces between the molars were the normal condition. He believed that the molars were made to touch one another, and he thought they should touch one another. If they did not, he thought the jaw was over developed. Probably it was due to an excessive development of the tongue producing the spacing of the molar teeth. It might be quite normal for temporary teeth to be spaced in the

incisor region, but he was confident Nature intended the molar teeth to be in contact.

(Mr. Northcroft exhibited three slides illustrating his remarks).

Mr. H. VISICK thought the Committee on nomenclature was more necessary than ever. A great many people talked about the normal occlusion of the six-year-old molars, and he thought Dr. Wallace several times mentioned that Dr. Angle spoke about molar occlusion. That was not so. Dr. Angle always called it the normal mesio-distal relation. In Class I cases the molars were not necessarily in normal occlusion at all; they might be buccal or lingual or any position almost. It was very important to take note of that in speaking of such cases. He wished to ask Dr. Sim Wallace what books he would recommend for the study of the development of jaws. Dr. Wallace took it for granted that everybody knew all about it, but he was bound to admit he did not know much about it himself. Dr. Wallace appeared to think that it was possible to push back the molars, and he himself did not see why that should not be done, even without the use of the front teeth, using the head gear, for instance, in connection with the arches and pushing back the molars bodily. They made spaces for themselves if they were pushed back. With regard to wedging, Dr. Wallace had referred to the appliances sold to show belief in the principle of wedging, and he should rather like to hear what those appliances were, as he did not remember ever having seen them specially mentioned. On the question of wedging, people said that the temporary teeth should be retained so that as the teeth behind came forward they would keep the space between the teeth. Taking the first temporary molar as an example, as the tooth behind pushed forward, it would keep the space between the canine and the second temporary molar. He did not think it was a question always of whether they were touching, but it was a question of the tooth being in the jaw and keeping the space. If a tooth was there, the patient was always biting on it, and the bone was kept firm and well developed around it. With regard to the space between the temporary molars, he did not remember ever having seen a case except he thought it was an abnormal one. Where spaced teeth were observed, as far as he remembered, they always stopped at the back of the canines; he did not think they had ever seen it between the molars except in mal-occlusion. With regard to treatment from the etiological standpoint, a great many of the Class 2 cases were caused, he thought, through a very temporary condition of mouth breathing. Dr. Angle affirmed that a slight cold for only a few hours was enough to produce a typical case of Class 2, and he thought that was more true than ever, because Mr. Thompson had shown that when the permanent molars erupted distally or mesially, it depended on which tooth was launched first. If that was so, it seemed to him it was very likely that if, when the teeth were just erupting, the child caught a cold and had to keep his mouth open for a day or two, it would be quite an easy thing for the whole lower jaw just to drop back the fraction necessary and

throw the molar into distal occlusion, and once it got there it did not regain its position.

Mr. LOCKETT said there were a few points he wanted to bring up, but they had been pretty well handled by previous speakers. He should like to hear Dr. Wallace explain perhaps a little of what he said where he stated "That the restoration of normal occlusion may still further retard the developmental processes which should normally help to correct the mal-occlusion." He did not quite understand what he meant and it would be convenient to have a little explanation. Somehow or other it seemed to him that one might easily get the impression from the paper that Dr. Wallace was of opinion that their Trans-Atlantic colleagues did not lay much stress on the matter of etiology. He did wish to point out that he had had the pleasure of seeing a good deal of the work that the best men had done, and if that was the impression of Dr. Wallace, or anyone else, it was a wrong one. The Americans were very strong on the point of removing any causes before treatment. They were very strong on the care of the temporary denture, which as everyone knew was a very important matter from the standpoint of orthodontia. A great many cases would give little or no trouble if there had been more care of the temporary denture. He had no doubt that Great Britain might claim to be pioneers in the matter of etiology, but the Americans were not so far behind.

Dr. SIM WALLACE, in reply, said that with regard to the important business of retaining the temporary teeth, he had been specially interested in the matter because England had taken up a few ideas on the subject, while he was bound to say that America had disappointed him very much. In America they still adhered to the idea that antiseptics and tooth brushes would preserve the temporary teeth and probably they believed that the tooth brush and antiseptics would prevent crowding of the temporary teeth. If that was what anyone meant by the care of the temporary dentition, it was not what he himself meant in anything he had said either in the paper or previously. He did not believe that by cleaning teeth with antiseptic mouth washes and by tooth brushes, anything could be done to prevent irregularities. With regard to what the Americans said in their books on orthodontia, he had the sixth edition of Dr. Angle's book, and he was very much disappointed to find that he had been hoodwinked by that book. He had read it through at first and was delighted with it; he left it for a time and read it again and found that the fundamental principles that had been worked out in England as to the development of the jaw had been carefully omitted. With regard to the other etiological factors Angle mentioned, they pretty well corresponded with those that had been more or less completely given up in this country—such things, for example, as heredity, physical degeneracy, and two or three other extinct ideas. Something that would illustrate Dr. Angle's ideas with regard to etiology had been indicated by another speaker, who thought that a few hours' cold in the head would do the trick! He did not believe in those systems of etiology

at all. Nature had arranged that we could take a cold in the head occasionally, and as long as it was not persistent the teeth would come right as far as that cause was concerned. Mr. Baldwin had indicated that dentists acted scientifically in the case of mouth breathing. He thought he had brought that out in the paper and that nobody would dream of treating such a case without removing the cause. In fact, he practically said that they were acting scientifically when they removed the cause and restored the breathing. He remembered once not acting scientifically himself. He told a patient three or four years ago to go to a doctor and have the adenoids removed, and she did so, but that did not restore the normal respiration, and to the present day she wore a retention plate. With regard to the development of the jaw not being stimulated by expansion, the Hon. Secretary had said the etiology was not known, that it was a very difficult point, and so on, but he himself claimed to know it. The reason why the jaw was not developed by expansion was because if the jaw was expanded to such an extent that the tongue could not press the body of the jaw forward, then it did not push it forward; in other words, the dominant factor in the development of the jaw was the tongue when it was in its normal position, and when the mouth was held open by causes such as mouth breathing or dragged on by weak health, it caused people to hold their shoulders in a slouching manner, dragging their whole face and tongue downwards. With regard to the statement that the natural tendency was not for cases of irregularity to correct themselves, that was exactly what he denied. The tendency was for irregularities to correct themselves and he seldom finished a regulation case on that account, because immediately the abnormal cusping was released, Nature would do the rest, provided the cause was removed. Supposing a case of mal-occlusion in which the cause was removed and the cusps arranged so that they could slip into their place, then they would do so. There was no need for a retention plate in the great majority of cases. All that was necessary was to relieve the mal-cusping sufficiently, and the tendency would be for Nature to correct the irregularity. He admitted that in the case of the use of the Baker anchorage the development of the body of the lower jaw was stimulated, and that was one of the good things that had come from the excellent appliances obtained from America. The arch was on the lower jaw and the pull from the region of the upper canines by means of elastic bands, the mandible was dragged forward just exactly as he wanted to have done by the aid of the tongue. In that exceptional case there was a mechanical appliance that actually tended to stimulate the growth of the body of the mandible. With regard to Mr. Northcroft and the assumption that nothing was known of the 87% of cases, again he had to say that he assumed he knew a great deal about that, and he hoped that English observers knew a lot about it as well, and American observers, too, although he had not seen it much in American books. He had seen a great deal about it in journals in England of late and also in France. Another speaker had asked whose book he should study to find

out the causes of irregularities. It was treated in his (Dr. Sim Wallace's) own book. With regard to the cause being removed, in many cases the cause was removed and that was why such good results were often obtained, by luck and not by good guidance. The cause should be recognised, and if it disappeared naturally the dentist might have the credit for it; if it did not disappear naturally it must be made to disappear. In a great number of cases of irregularity the cause passed away, but at the same time the cause should be known, and where it did not pass away it should be removed. Mr. Northcroft had spoken about the early eruption of the two central incisors, and he was almost certain that under such circumstances there would be irregularity. In such circumstances irregularity would be almost certainly found, but to say that it was impossible to know the etiology, and that it could not be found out, was another matter.

Mr. NORTHCROFT said that what he had stated was that they could not govern the growth of teeth in the jaw.

Dr. SIM WALLACE thought it could be governed very largely. In the case of a model he had shown at the last meeting, he deliberately prevented the teeth changing at an early date simply by giving the child ample work for the temporary teeth. If the temporary teeth were given ample work they would keep their sockets more firmly and drop out at a later period than they would with pap-fed children. Consequently he knew the etiology and knew why it was these cases always eventuated in irregularity, namely, because the children had been brought up on pap-feeding; the two things went together, the early loss of the temporary incisors and the crowded condition of the mouth. With regard to spacing of the upper temporary molars, it was a practical impossibility for them to touch if they occluded correctly, because the mesio-distal diameters of the upper temporary molars were considerably less than the mesio-distal diameters of the lower temporary molars. The most interesting part of Mr. Northcroft's criticism was with reference to the malar process and the molar tooth coming forward.

In the first slide Mr. Northcroft showed the malar process above the first permanent molar. With regard to the second slide, if it were the same face, one could see that the amount of bone anterior to a line drawn from the middle of the molar would be much greater than when the malar process was in the position above the second bicuspid or second temporary molar. In other words, the malar process had been translated backwards. The molar tooth did not move back at all; it came into position and the temporary molar against which it was placed remained there for five or six years after it had come down into its position. During that time the malar process had had the opportunity of passing gradually backwards and coming above the first permanent molar, and did exactly what Sir John Tomes said about it—viz., the malar process was translated back by deposition of bone posteriorally and absorption anteriorly.

The PRESIDENT, having accorded the thanks of the Society to the authors of the Casual Communications and the paper, announced the paper for the following meeting, and the society adjourned.

DEMONSTRATION MEETING.

ABSTRACT of Demonstration Meeting held on March 25th, 1908, at the Medical Society's Rooms, Chandos Street, Cavendish Square, W.

MR. J. H. BADCOCK (President) in the chair. The Minutes were read and confirmed. The following gentlemen were elected members of the Society :—

Mr. Ernest Sturridge, L.D.S., D.D.S., 29A, Wimpole Street, W.

Mr. C. Peyton Baly, L.D.S., Eng., M.R.C.S., L.R.C.P., Eng., 182, Harley Street, W.

Mr. Charles A. Clark, L.D.S.I., 10, Portman Street, W.

Mr. Wilton Thew, L.D.S., Eng., 53, Ordnance Road, St. John's Wood, N. W.

Mr. G. Paton Pollitt, L.D.S., Eng., D.D.S., Penna., 49, Queen Anne Street, Cavendish Square, W.

Mr. C. Heygate Knowles, L.D.S., Eng., 13, Lyndhurst Road, Hampstead, N.W.

Mr. Percy George Pavitt, L.D.S., Eng., M.R.C.S., L.R.C.P., Lond., 42, Welbeck Street, W.

Mr. George J. Goldie, L.D.S., Edin., L.R.C.P.S., Edin., L.F.P.S., Glasgow, 95, Merrion Square, Dublin.

Mr. Percy F. Henry, L.D.S., Eng., 79, King William Street, E.C.

Mr. James Scobie, L.D.S., Edin., 24, Lithos Road, West Hampstead, N.W.

Mr. F. M. Farmer, L.D.S., Eng., St. Winifred's, Hampton, Middlesex.

The meeting then adjourned for the following Demonstrations, which were much appreciated :—

"A method for the rapid and uniform casting of Orthodontia Models," by Mr. Beauchamp.

"The Plaster Plane," by Mr. Hedley Visick.

"Adjusting Clamp Molar Bands," by Mr. H. C. Visick.

"The Baker Anchorage," by Mr. J. E. Spiller.

"The Rotation of Teeth by Means of Silk Ligatures," by Mr. E. R. Tebbitt.

"Some of the Uses of the Lane Blow Pipe in Orthodontia," by Mr. A. C. Lockett.

ORDINARY MEETING.

MEETING held at the Medical Society's Rooms, Chandos Street, Cavendish Square, W., 15th April, 1908.

MR. G. NORTHCROFT, in the absence of the President, was in the chair.

The minutes of the previous meeting were read and confirmed.

The following gentlemen were ballotted for and duly elected members :— Mr. N. G. Austen, L.D.S.Eng. (Portsmouth), Mr. Hugh T. Campkin, L.D.S.Eng. (Harley Street), and Mr. Charles R. Shattock, L.D.S., M.R.C.S., L.R.C.F. (Chiswick).

MR. H. VISICK exhibited the accompanying chart for use in orthodontia cases :—

He stated that his intention was to print the Chart on loose leaves, bound up as a loose-leaf ledger, the dimensions being 7in. by 8in. He welcomed suggestions for improvement.

MR. SPILLER thought the chart might be simplified by deleting a number of columns and putting in a larger column for "Remarks," and a column for "Previous illnesses." There might also be a smaller chart of the normal teeth.

MR. H. C. VISICK thought it would be well also to have a column for measurements of the teeth for use with the Hawley method of planning the arch.

MR. HOPSON said it was difficult to criticise on the spur of the moment, but he agreed that the Chart might be simplified. Some of the spaces were very small for the size of the page. He thought the scheme should contain a chart of the teeth in which might be recorded other dental operations, such as fillings and crowns. From the hospital point of view the Chart would be rather complicated. He suggested that the back of the page might be ruled for further entries. He had had brought to his notice by Mr. Chapman a very elaborate chart in the *American Orthodontist*, but it was far too complicated and required much consideration before every column could be filled in.

MR. CHAPMAN thought it was desirable to have a column for the measurement of the individual teeth, especially in private practice.

MR. H. VISICK, in replying to the remarks, believed that nearly everybody had a special chart of the teeth with ordinary dental diagrams. The chart he showed was an orthodontia chart only. Being in a loose-leaf book, it was possible to have any number of leaves ruled so that there would be plenty of room for remarks. To simplify the chart by having one column for general remarks would rather do away with the idea of having everything under proper heads. He found in practice that the columns were just about the correct size for recording the facts. He agreed that a space for the Hawley measurements would be a very good thing.

NEW FEEDING BOTTLE.

Mr. MELLERSH exhibited a new scientific nursing bottle, which he thought appeared to be a serious attempt to overcome some of the dangers attendant upon bottle feeding. According to the makers, "The bottle consists of two parts, a wide cell, which can be filled without a funnel and cleaned without a brush. The interior can be cleaned in the same way as a drinking glass. The other portion of the apparatus is not a nipple but an imitation of the human breast. It is yielding like an air cushion, yet non-collapsible. It can be turned inside out, so that all parts of the bottle are easily accessible for rapid and thorough cleansing."

The CHAIRMAN thought the bottle did away with some of the objections which had been found to the old forms, and clearly a child would not suck so much as with the ordinary form of bottle, and therefore the cheeks would not be pressed so tightly against the side of the maxilla.

Dr. SIM WALLACE asked whether air could get in without milk coming out.

Mr. PEYTON BALY said his child, three weeks old, was being fed with the bottle, and there was no difficulty about the air question. The child practically squeezed the milk out through the nipple instead of sucking in the usual way, and the air ran back through the nipple, when there was sufficient vacuum in the bottle.

Mr. A. C. CLARKE thought the flow of the milk should be regulated.

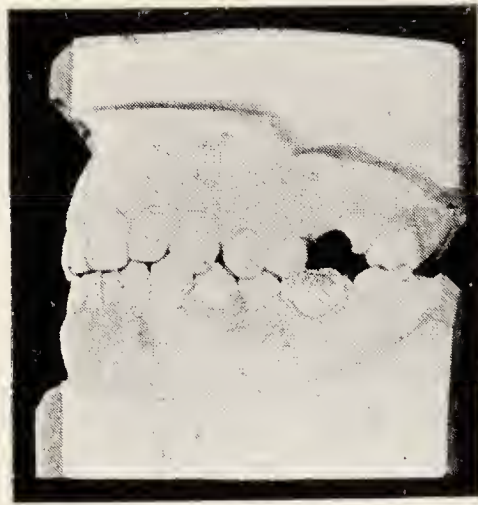
The CHAIRMAN said the opening in the rubber was very small and there could not be a too rapid flow of milk.

Mr. MELLERSH said he had seen one of the bottles in use and the nurse informed him that she sometimes found it necessary to let a little air in by holding the rubber at the edge away from the bottle for a second. The regulation of the flow could be provided for by enlarging the aperture with a needle.

Mr. HUBERT VISICK exhibited models and photographs of a case on which he asked the advice of the members.

He had taken out the three six-year-old molars as they were unsalvageable, and he wanted information with regard to taking out the fourth. It was impossible to put a bridge in the spaces as the patient could not afford to have the work done. The patient was fifteen years of age and his bite was practically normal. He wanted to know whether the molars would tip very much or come forward until they touched the bicuspid. The molar was a dead tooth and had a large buccal filling, but otherwise the tooth was very sound.

Mr. MAURICE said he had had to consider a similar problem many times in private practice, hospital practice, and in institutions, and he had not the least hesitation in saying that the molar should be extracted. If it was left in, the gap in the maxilla would persist. The two teeth having been extracted on the other side it was quite possible that the centre would alter. If the tooth was extracted the space would close up on both sides equally and, the articulation of the second molars being good, the chances were that there would be very little, if any, tipping. Even if it were a perfect tooth he should unhesitatingly remove it under the circumstances.



TO ILLUSTRATE MR. HUBERT VISICK'S COMMUNICATION

Mr. CLARKE advised the extraction. The second bicuspid would move back a little, but in all probability there would be very little tipping. The space would be closed very considerably in two or three years, and he should not hesitate for a single moment to remove the six-year molar even though it were sound.

Dr. SIM WALLACE did not think there was much likelihood of there being much tipping. The upper tooth occluded with the posterior part of the lower tooth so that there could not be very much inclination to tipping, but if there was he believed there was a mechanism, which he had never tried, to prevent it and to allow the teeth to come forward, namely, D bands round the molars with a hook on the end of the bar on to the bicuspid so that the horizontal bar would prevent the tipping of the teeth. It would practically only require to be done in the lower, if done at all, because the upper molar was not so likely to tip.

Mr. CHAPMAN was not so sure of the advantages of removing the fourth molar, if there was any possibility of its being saved until the patient was fifty. On the left side there was no doubt that the molars would not only move forward, but the bicuspid backwards, and at the same time the bite would close very considerably, mastication would be ruined, and great pressure would come on the anterior teeth. He believed that would be averted to a large extent by the molar being allowed to stay where it was.

Mr. SPILLER had great sympathy with the difficulties of the case, because he had had three molars extracted from his own mouth and only one left, an upper molar. In his case the lower bicuspid travelled backwards until they were in contact with the second molar, so that on each side there was a space left between the canine and first bicuspid, and all the teeth were in contact behind. On the side where the molar was left the arch crumpled to some extent. He should vote for the extraction of the fourth molar even if it were a sound tooth, because on the side where his molar was left in, his mastication was not so efficient as on the other side where there was a very fair masticating surface.

Mr. LOCKETT did not think a plate was a desirable thing to wear at the present stage, but it was quite possible that in a very few years the patients might be able to afford a bridge which would give him the full benefit of the masticating surface. If the spaces were left in the condition shown, the patient would in the course of a few years have no perfect masticating surfaces on either side. He would on no account extract the molar on the right side, because it was quite possible to keep the spaces as they were until the young man could afford to have a bridge. Something ought to be done to maintain the spaces until the patient could afford some means of permanent retention, for if not there was no question of what would happen; the man would go through life with no masticating apparatus.

Mr. W. J. MAY said that nineteen men out of twenty would have extracted the tooth. At various times in his youth he had had a first molar extracted and one upper one remained until he was twenty-two when he had that removed and he had

now a very good masticating apparatus. He thought a bridge over such a space as was shown was really absurd. In his case, although the remaining upper six-year molar was not removed until he was twenty-two, the space had quite closed. The teeth had tilted slightly, but the bite was powerful.

Mr. THOMPSON thought that not enough had been made of the fact that the extraction should be symmetrical. In a symmetrical cases the centre was almost always thrown out. It did not matter so much for a boy as for a girl. He had taken a model the other day where the teeth had been extracted and the lower teeth was thrown out of the centre, and the result was very disfiguring. Seven years ago he had a case in which he extracted the four six-year molars and spoilt a pretty face. He should like to know what was the appearance of the wisdom teeth. Mr. Bailey had suggested to him that supposing the patient had an impacted wisdom tooth, what would happen with the bridges? From his own experience he thought the case would be met by Nature doing all that was necessary if the tooth was extracted.

Mr. HUBERT VISICK, in reply, thanked the members for their advice, but could not say he had yet decided what he was going to do. The question of whether the man would be able to afford bridges later on would require to be thought over. He did not think that bridging the space was ridiculous, and if the man could afford it he should advise him to have it done. He thought it was pretty certain the teeth would be spaced.

Mr. HERBERT TILLEY, B.S., F.R.C.S., then read his paper entitled

“THE RELATIONSHIP OF NASAL OBSTRUCTION IN CHILDREN TO DEFECTIVE DEVELOPMENT OF THE JAWS.”

At the outset of my remarks to-night, will you allow me to say how keenly I appreciate the honour of being asked to relate some of my experiences concerning the relationship of nasal obstruction in children to defective development of the jaws and so, indirectly, of the teeth.

It would be in vain for me to wish that the execution of my task might be as easy as the acceptance of the compliment you have paid me.

The importance of the subject scarcely needs emphasising, since the great question of the physical degeneration of our people has rightly become a matter of national concern and a subject which has been and will be seriously dealt with by our legislators.

Probably the prime factors in the production of a low physical standard are deficient or improper food, unhealthy surroundings, want of fresh air, and sunshine. But while these factors produce a low physical standard in which defects in the upper respiratory passages are prominent features, yet these latter react again on the general health of the organism and tend to establish a vicious circle which we should endeavour to break, or rather to convert into an ascending spiral of an improved standard.

In the treatment of this subject, it will be my intention to be as practical as possible, and only to discuss theories in so far as they may influence our line of treatment.

I shall have little to say on the normal development of the jaws, for that subject has been recently and exhaustively treated by Mr. Carter. Of matters purely dental, I must be as silent as my ignorance is profound. Rather would I prefer to deal with nasal obstruction and its effects as seen by the student of diseases of the ear, throat and nose and hope that we may find some points of common interest. Our time may not be spent in vain if I am in any way able to assist you in recognising certain forms of nasal obstruction, the right treatment of which will render your work easier and more efficient.

We may divide the subject under the following heads :—

1. What forms of nasal obstruction are met with in children ?
2. How are they caused ?
3. What effects do they produce ?
4. How do they produce them ?
5. What are the symptoms which indicate the presence of nasal obstruction ?
6. By what method may they be treated ?

Question I.—What forms of nasal obstruction are met with in children ?

In young children, from one to 6 or 7 years of age, nasal obstruction is almost entirely due to adenoid growths in the nasopharynx and these are frequently, but not always, associated with enlarged tonsils. These growths tend to disappear with increasing age and often undergo marked involution about the time of puberty, but it is by no means infrequent to meet with them in adolescents and grown-ups, and one of the largest adenoids I have ever seen I removed from a stout lady, aged 50, in whom it was causing chronic suppuration from the right ear, deafness, and tinnitus.

From the age of 6 years onwards, in addition to the presence of adenoids (and probably indirectly caused by them), obstructions in the nasal cavities proper may appear and they take the form of deviations or deflections of the septum, or outgrowths from that structure, which are termed “spurs,” “spines,” or “crests,” according to the shape they assume.

A less common form of obstruction in children may be produced by a chronic congestion of the mucous membrane covering the turbinals, especially the inferior bone, but as a general rule this condition is associated with and probably caused by the presence of adenoids in the nasopharynx.

Deviations of, or outgrowths from the nasal septum show no tendency to diminish with advancing age, in fact, their evil effects often seem to increase with lapse of time.

2. How are these obstructions caused ?

I do not know that anyone has yet given us a satisfactory explanation of the causation of adenoids.

We know that there is a general tendency to lymphoid overgrowth in children and that successive attacks of nasal catarrh are

very common during the early years of life and each attack seems to promote the growth of unhealthy glandular tissue in the upper air passages. Such a growth will be much favoured by the incidence of one of the acute specific fevers common in childhood, *e.g.*, measles, scarlet fever, diphtheria, whooping cough, &c.

These post-nasal glandular hypertrophies are very common cold in damp climates such as our own. They are far less common in Southern Europe and the Tropics. Our Italian confrères tell us that adenoids are rare in Italy.

If it could be shown that this affection was commoner to-day than it was one hundred years ago we might blame our so-called civilisation, our faulty methods of feeding and up-bringing of children, but it seems certain that adenoids existed amongst the Romans. They certainly suffered from the results of nasal obstruction if we may judge by the defective development of the jaws of some of the old skulls.

It is not unlikely that unsuitable food may be one of the potent factors in the matter. A child nursed for eight months at the breast of a healthy mother and then fed on appropriate food rarely suffers from adenoids. In my experience the bottle fed infant who grows fat and flabby on patent and partially predigested foods is often a sufferer.

As one of a long family, I have vivid recollections of how my younger brothers, after having been weaned, were frequently provided with a hard, finger-shaped crust from the bottom of the home-baked brown loaf, and which they crunched and endeavoured to masticate until both the crust and the baby were more or less unrecognisable. At the least it may be said that such gymnastics were eminently suitable for promoting a free flow of blood and lymph in the muscles of the jaws and for leading to a natural and healthy development of these and surrounding structures. To sum up, I think it is probable that the main cause of adenoids is a constant succession of nasal catarrhs brought about by defective hygiene, and want of regular exercise and these factors are more potent for evil in young children who are improperly fed.

THE CAUSATION OF SEPTAL IRREGULARITIES.

These, as already stated, may take the form of a deviation of the septum, or outgrowths upon that structure which take the form of "spines," "spurs" or "crests."

Time will not allow me to discuss at any length the causation of septal irregularities, but two important actors may be mentioned:

1. Trauma.

2. Irregular and delayed eruption of the incisor teeth, more especially the central incisor, and this delay is possibly due to some obscure disturbance of nutrition.

With regard to (1) Trauma, it will be obvious that as the elastic septum is firmly fixed above and below, a blow upon the bridge of the nose will cause the septum to buckle or crumple, and unless it be quickly restored to its normal position, one or other nasal cavity must remain partially but permanently blocked.

(2.) Irregular and delayed eruption of the incisor teeth as a cause of septal deviation has recently been put forward by Mosher (Boston, U.S.A.), as a result of careful dissection and clinical observation.

He considers that if the eruption of a central incisor be sufficiently delayed it causes a hypertrophy or deformity of the premaxillary wing above it, and this distorts the septal retaining groove made by these "wings," so that the septum slips from its bed, and thus a "spur" or "crust" is produced.

The cartilaginous portion of the septum may be deformed in the same way.

I am able to show you two patients in whom such deformities of the septum are well marked and are associated with irregularity of the central incisor teeth.

Only thus tersely can I bring this relationship to your notice—its full discussion would mean a dissertation on the development and anatomy of the facial bones and the incisor teeth. Those of you much interested in the matter will find the paper referred in the "Laryngoscope," Nov., 1907.

3. What effects are caused by nasal obstruction?

From the first to the sixth year of life the effects of nasal obstruction caused by adenoids are almost legion, but I must confine my remarks to those which are to be seen in and around the nasal and oral cavities.

Here we shall note:—

1. Defective development.
2. The production of high-arched, narrow palate.
3. The V-shaped alveolar arch.
4. Crowding and irregularity of the teeth.

1. Defective development will show itself in an absence of the normal spacing of the teeth so that room is not made for the permanent set to appear.

2. The palatal arch will be high and narrow, and this condition is almost always associated with some irregularity of the nasal septum. Whether the palate is actually raised or only appears so by compression downwards and inwards of the alveolar border is a question which I believe is undecided.

The open-bite will be produced by the growth downwards and inwards of the alveolar processes in that the molar and bicuspid teeth are brought to a lower level than normal.

About the seventh year of life, to the obstruction caused by adenoids, we may have appearing that due to septal irregularity caused by defective development of the central incisor due to imperfect nutrition. Whether the latter is indirectly due to the adenoids is a very interesting question, *e.g.*, can it be in any way brought about by the mal-development of the upper jaws?

Looking back on one's experience in these matters, I think it may be truthfully said that a high-arched narrow palate in children is always associated with nasal obstruction which may take the form of adenoids with or without enlarged tonsils, or after the seventh year these conditions in addition to deformities of the nasal septum.

4. How does nasal obstruction produce the deformities of the jaw with irregularity of the teeth ?

One of the most noticeable effects of chronic nasal obstruction in a child is the constantly open mouth, and when a considerable degree of obstruction results there can be little doubt that the lateral compression of the cheeks upon the soft growing bones of the child's face and lower jaw is the prime cause of the deformities to which reference has been made, viz., the narrowed, high-arched palate with irregularity of the teeth.

This view is borne out by the consideration of a case published by Lack, to whom I am indebted for the illustration. Of this case he says : " The patient was a boy aged 12. He had nasal obstruction, necessitating mouth breathing and both the upper and lower jaws were deformed. He had had left facial paralysis since two years of age ; the soft parts on this side of the face were consequently flaccid, the right side of the face was normal. In this case the arch of the palate was high and narrow, the teeth on the right side were irregular and crowded, those on the left side were normal. The right central incisor was rotated so that its posterior surface looked inwards, and its axis sloped inwards. The right lateral incisor was on a posterior plane to the central. The alveolar arch on the right side was flattened in both upper and lower jaws, running in an almost straight line from the incisor teeth to the first molar. On the paralysed side there was little or no deformity of the alveolus or teeth. The only apparent factor in this case which could cause a difference between the two sides was the facial paralysis, which removed the tension of the cheeks in the paralysed side."

An additional feature in promoting the deformity of the upper jaw in mouth breathing will be the absence of tongue pressure against the alveoli as well as of pressure of the upper and lower teeth against one another.

These factors would cause deformity of the lower jaw, but it would be less marked than in the upper.

5. What are the symptoms which indicate the presence of nasal obstruction in children ?

Until the age of six years the vast majority of the cases are due to adenoids, after that period to adenoids and septal irregularities.

You may generally be fairly certain of the presence of adenoids in a young child if one or more of the following symptoms are noticed :—

1. Snoring or breathing heavily at night and mouth breathing during the day.

2. Occasional attacks of earache or deafness, and still more so if there is a discharge from one or both ears.

3. Great frequency of "colds in the head." A child with what the mother terms a "wet nose" is nearly always the subject of adenoids.

The presence of septal irregularities would tend to increase the above symptoms, but only an examination of the nasal cavities would reveal the true nature of the obstruction.

There are many other symptoms which point to impairment of nasal respiration, such as deformities of the chest wall, symptoms due to defective oxygenation of the blood, which influence the nervous system, digestive disturbances and so on, but as these will scarcely come directly before your notice it would be unwise to spend much time on them on this particular occasion.

The cardinal symptoms which you should be on the look out for when dental irregularities or ill-developed jaws come before you are "snoring by night," "mouth breathing by day," "ear symptoms," and "a great susceptibility to colds."

It is scarcely necessary to say how important it is to remove obstruction to normal nose breathing as early as possible, before definite and perhaps irremediable deformity has taken place, and for these reasons the most favourable age for operating upon adenoids and tonsils is from the third to the fifth year of life.

The treatment of irregular teeth by the dental surgeon will then have every chance of rapid and permanent success.

In fact, I think one may say that the best age for removing adenoids and tonsils is the earliest age at which they give rise to definite symptoms.

After the sixth year of life rapid development of the facial bones occurs and any deformity becomes increasingly difficult to overcome. When adolescence is reached many of the symptoms which trouble the patient such as attacks of deafness, post nasal catarrh, mental apathy and inertia may be relieved, but the skeletal deformities remain, and it may take many months before a natural method of breathing is acquired or the normal resonance of the voice is established.

6. By what method may nasal obstruction be removed ?

This is scarcely the time or the occasion to discuss the methods for removing adenoids and tonsils or septal irregularities.

I would only warn you of the folly of hoping to remove hypertrophied masses of gland tissue—adenoids—by breathing exercises—a form of "bloodless surgery" much vaunted by teachers of calisthenics and enthusiastically adopted a few seasons ago by those members of society who are for ever in search of some new craze.

It was told us by the high priestesses of that new cult of "Breathing exercises" that adenoids could be thus cured without operation, but they never explained why the tonsils did not also disappear, although they are practically identical in structure and were subjected to the same influences during the exercises. It was unfortunate that the tonsils were always visible to the naked eye and the adenoids were not. I wonder if this explains the silence of the "professors" with regard to the tonsils.

I am afraid, too, that many of us have some very fine specimens of adenoids in our collections, which proved rebellious to the gentle influences of the air currents and refused to be wafted away during months of breathing exercises.

To-day one does not hear so much of this bloodless cure, but, on the other hand, those who will give the matter a moment's con-

sideration will see how very valuable such exercises are when the obstruction has been thoroughly removed by surgical means and when it is necessary to exercise to their full the muscles and mechanism of respiration which for so long have been inefficiently used.

I will show you the instrument which I have for a long time used for the removal of adenoids—the mass is brought away *in toto*—the operation is quickly performed and the shock is practically negligible.

The pictures which I will demonstrate to you illustrate the method by which septal irregularities are removed. It is known as “Killian’s operation for submucous resection of the deviated septum,” and the principle of the operation is the conservation of the natural mucous membrane of the nasal cavities. Several specimens of septal irregularities may be seen in this bottle.

The operation is a very successful one, it can be performed under local anæsthesia, but I prefer general narcosis, because the patient has neither mental anxiety nor physical pain, neither is the surgeon induced to scamp his work in order to save a few moments of time.

These, gentlemen, are a few scattered thoughts on the relationship between nasal obstruction in children and deformities of the jaws, and I shall feel that the time has not been spent in vain if I have been able to present the subject so that it may afford you one or two points for reflection and sometimes to help you in detecting the cause of an irregularity which should be dealt with before you undertake to remedy its effects.

The paper was illustrated by a large number of slides and diagrams illustrating the operation for removal of the nasal cartilage. Mr. Tilley also illustrated his paper by showing the conditions of several patients in attendance.

DISCUSSION.

The CHAIRMAN expressed the indebtedness of the Society to Dr. Tilley for so kindly reading his excellent paper. It was not his intention to make any remarks about it except to point to the fact, which he had observed for himself, of the extreme desirability of operating on the cases sufficiently young. He thought it was possible to impress on the parents too much the necessity of having their children examined by specialists, and if necessary operated upon between the ages of three and five. If the rhinologist was going to do any good from the dental point of view the operation must be undertaken at those ages. The critical age was from six to seven in orthodontia, and nasal obstruction should be removed before that age.

Mr. SPILLER asked whether it was advisable in the case of a patient to have the operation at the age of adolescence. Another question on which he wished enlightenment was, Why did adenoids disappear at that age?

Dr. SIM WALLACE asked the author whether he considered that the disease had become much more prevalent in recent years than it was fifty years ago? He was acquainted with the fact

that adenoids had been, as it were, only discovered within the last thirty to fifty years. They were unknown to him in his student days owing to lack of teaching on the subject, but that did not make them non-existent. If it were possible to collect the skulls of people at present being brought up, and compare them with the skulls of people living a hundred years ago it would be found there was not the same amount of dental irregularity which the author believed was the result of adenoids or some form of nasal obstruction, and he thought it was possible to form an estimate of the amount of adenoids that might have been present fifty or a hundred or a thousand years ago if a number of the skulls could be obtained. The author had said that adenoids were known many years ago, and an examination of ancient skulls would prove the fact. No doubt that was so to a small extent, but the percentage of skulls of what might be called typical mouth-breathers was, he believed, very small. In the collection unearthed some few years ago at Hythe there was not one single example out of several hundred. In museums dental irregularities were pretty rare. Dr. Spicer and Dr. Harry Campbell had looked through some ancient skulls at the College of Surgeons, and had found the mouth-breathers conspicuous by their absence. Therefore, he wanted particularly to ask whether the author had made any estimate of the proportion of children that were affected at the present day by adenoids, and could give an estimate of the number. He rather fancied the author did not know exactly the position he (the speaker) had been taking up recently with regard to the causation of adenoids, but he was very glad to hear that he considered the children who were brought up on the pap system were more liable to adenoids than those brought up in the rational hard food manner, because he had commenced to doubt whether there was much in the theory that he had spent so much time in elaborating. Certainly he did not attach so much importance as he once did to mastication and the general development of the jaw through mastication and through the general development of the physique. The reason he had directed his attention to a totally different subject from food and mastication was the failure that had come about amongst children that had been put on to what he considered a very rational diet, so rational that the children had no decayed teeth and had well-developed palates. The arches were broad, and well-developed in the cases that had been operated upon for adenoids. Consequently, he had to a very large extent abandoned the theory that there was any great predisposition to adenoids through bad feeding. He believed 80 to 90 per cent. of the cases were caused by cold and damp air, and the remainder might be put down to bad feeding. According to some rhinologists with big German names cold and damp air lowered the vitality of the mucous membrane in the nasal pharynx. If that were so, chronic affections, such as colds in the head, seemed to him very likely to be superimposed upon the lowered vitality of the mucous membrane if the children were sufficiently subjected to cold and damp atmospheres. By only looking at the patients the author had shown, he was able to say

that they slept with their windows open at night ; he asked the mother and she said that was so, but she did admit that in January they occasionally closed the windows. He had recently learned another thing that was perhaps more serious than the depressed vitality of a particular part. It appeared that cold and damp air when breathed gave rise to less oxygenation of the blood than when the air was dry and heated. Some experiments were conducted by Prof. Thomson, of Manchester, an abstract of whose work was published in the *Lancet* of the previous week, and it appeared that there was deficient oxygenation, and, consequently, the deliberate introduction of cold and damp air into the sleeping apartments of children might be a doubly detrimental effect, and have a double reason for predisposing to the lowered vitality.

Mr. HOPSON asked whether the author thought there was anything in the theory as to the possibility of adenoids being hereditary, or, at any rate, the tendency towards the conditions of adenoids being hereditary ? Also he wished to know whether the author had ever observed any spontaneous tendency towards the lowering or widening of the arch after an operation at the age of six or seven, provided that the patient had received a course of instruction in proper nasal breathing and had acquired the habit of normal breathing. If that was so it was a great point, adding very materially in the work of restoring the normal arch and normal occlusion. He was particularly interested in the remarks with regard to the deflected nasal septum and the delayed eruption of upper incisor teeth. It so happened that he had a patient, a lady of about nineteen years of age, who had a retained temporary right upper lateral incisor and the permanent central incisor had not come down. The tooth was there, as shown by the X-rays. When he saw the patient again he should certainly look to see if the septum was at all deflected owing to the retention of the tooth.

Mr. SCHELLING thought there was some information, gained in student days, about adenoids not being a disease at all, but a normal third tonsil. With regard to comparing modern skulls with those found at Hythe, he thought that was impossible, because the Hythe skulls were skulls of those who had fallen in battle.

Mr. HERBERT TILLEY, in reply, said, with regard to the question of the advisability of operation on adolescents, he did not think there was any reason why the operation should not be done when adenoids were producing symptoms, be they ear symptoms, nasal intonation of voice, headache, or inability to work or concentrate the mind. Whether the patient was five or fifty the thing which was causing the disability should be removed. The largest adenoid he had seen was in a very stout lady of fifty-one. She had a discharge from her right ear which had been going on for years, and he did not discover the adenoids until he saw her the second time, when he put in his finger and was astounded to find such a large mass. It was removed, and within three weeks the discharge from her ear had stopped, although it had been going on for twenty-five years. There was no age limit, but the best age to remove adenoids was between

four and five before deformities had been produced. Why they sometimes disappeared at the age of puberty he did not know. Of course there were many adenoid operations performed at seventeen, eighteen, and in fact up to twenty-five years of age, but there was a tendency if the adenoids were slight to disappear at that age. Dr. Sim Wallace had raised some very big questions. With regard to whether the disease had become more prevalent during recent years he thought it had, but it was very difficult now to look at the facts in proper prospective. If one walked down any crowded street in London, and looked at all the people presumed to be fifty, one would notice a good proportion with long narrow faces and obvious mouth-breathers, and they were the people who probably had adenoids before adenoids were heard of, and the adenoids had produced the effects seen to-day. It would take many years before statistics could be worked out showing how many of the older people had adenoids in childhood. Practitioners of aural surgery saw a large number of perforated drums in adults, and were told "As a child I always had a running ear." It might be taken for certain that such patients suffered from adenoids. They were sent probably to the seaside for three weeks and got better; then they came back, caught another cold, had a little more discharge, and were sent either to a different doctor or to a fresh seaside resort. It was change of air that was supposed to be the great treatment years ago. He did not think he was so young as not to remember the time when adenoids were overlooked by the very best men, and a strumous child, or a child with "running ears," sent away for change of air. To-day the cases were treated early, and well treated. Those remarks might be illustrated by a side issue. How many cases of cerebral abscess of the otitic region were now seen in large hospitals? When he was at the Golden Square Hospital ten years ago there was frequently a case of cerebral abscess in the hospital, but in recent years he had not seen more than one in twelve months. They were very uncommon, and would become more uncommon still, because the initial states were now dealt with very early. To-day in the large hospitals children were sent in by the County Council School teachers in such large numbers that it was difficult to know how to cope with them. The child went to school, was dull in its work, and the teacher diagnosed adenoids and sent the child to one of the hospitals. Everyone was on the lookout for the affection, and everyone said it was more common, and he thought they were relatively more common now than they were formerly. How far the food question had to do with the subject he did not know. He could not stop to discuss the fresh air theory, but his own feeling was that adenoids were due to chronic catarrh of the upper nasal passages, a constant succession of colds, and the susceptibility (to his mind) was often produced by ill-ventilation rather than by good. In the sanatorium treatment for consumptives, patients thought at first that they would die of "cold" in a week, but, however sensitive they might be at first, in a month they walked about

in slippers without socks, they never wore a hat, they slept in rooms almost without windows with the snow blowing in on the bottom of the bed, and they rarely had a cold from one year's end to another. Cold alone would not do it. The account of the Antarctic expedition under Captain Scott showed that in the five years they were in the arctic regions there were no colds amongst them, except after the night they had a dance, when they pulled up a carpet in one of the cabins and disturbed a lot of dust. That seemed to show that it was dust that was the cause and not the cold. With regard to the heredity of adenoids it was rather difficult to prove. Two or three children with adenoids might be in one family, and the parents perfectly healthy, with normal development of the jaws, and so forth. That probably went back to the question of being coddled in ill-ventilated rooms, rather than in rooms with open windows, but he was not going to join issue with Dr. Sim Wallace on that, as it was a difficult matter to decide. With regard to a jaw improving after an operation for adenoids at the age of seven, he could not answer that question, because after the operation was over the patient was rarely seen again, but it was very common for parents to speak positively of the improved shape of the face when the obstruction had been removed. He could not but think that if the operation was done near the age of seven, the growing capacity of the jaw and the extra breathing would be of assistance. With regard to adenoids being a disease, they might or might not be—he did not know. Every child born into the world had lymphoid tissue in the naso-pharynx between the pillars of the fauces and at the base of the tongue, and it was only when the parts of this lymphoid ring became hypertrophied and produced pathological symptoms that it could be said the border line between a normal condition and a diseased condition had been crossed. There were many other instances that might be suggested, for instance, the thyroid glands, which consisted of little vesicles of thyroid tissue. One little vesicle began to enlarge, and one spoke of adenomatous thyroid; it became so exaggerated as to produce symptoms and it was spoken of as an adenomatous tumour of the thyroid. Every child had gland tissue in the post-nasal space between its tonsils, and directly those gland masses hypertrophied, became chronically inflamed and produced symptoms of their own, there was a diseased condition which must be removed.

The CHAIRMAN tendered from the chair a very hearty vote of thanks to Mr. Tilley for his excellent paper, and announced that the next meeting would take place on May 19th.

DEMONSTRATION MEETING.

A DEMONSTRATION meeting was held at 11, Chandos Street, W., on Wednesday, May 20th, at 8 p.m. The demonstrations were given as follows :—

Mr. George Northcroft, "Taking Plaster Impressions."

Mr. H. C. Visick, "Making of Spurs."

Mr. J. E. Spiller, "The Jackson Crib."

Mr. C. S. Morris, "A New Pair of Band Forming Pliers."

Mr. J. G. Turner, "An Expansion Plate."

There was a good attendance of members and visitors, who much appreciated the demonstrations which were of an interesting and practical nature.

ORDINARY MEETING.

THE ordinary monthly meeting of the Society was held at the rooms of the Medical Society of London, Chandos Street, on Wednesday, June 17th, 1908, Mr. J. H. BADCOCK, President, in the chair.

The minutes of the previous meeting were read and confirmed.

Mr. Wilton Thew signed the Obligation Book, and was formally admitted to membership of the Society.

Mr. Robert May, L.D.S. Eng., and Mr. Walter Pidgeon, L.D.S. Eng., were ballotted for, and duly elected.

Mr. HAROLD CHAPMAN then read his paper, entitled,

“ON THE OCCLUSION OF THE TEMPORARY TEETH AND ITS BEARING
ON ANGLE'S CLASS II. CASES.”

IN the realm of orthodontia normal occlusion is a *sine quâ non* : but is it not a remarkable fact that the literature of this speciality has been devoted almost exclusively to the occlusion of the permanent dentition ?

Though some few cases of mal-occlusion of the temporary teeth have been reported, little or nothing has been written about their normal occlusion.

The normal occlusion of the permanent dentition is so well known that it will only be necessary to refer to one or two facts concerning the molars. It will be remembered that the third lower molar is usually a large tooth, much larger than its chief antagonist, the third upper molar ; also the other lower molars are mesio-distally greater than the corresponding upper teeth, the difference is less marked however.

But the mesial surface of the first lower molar is situated considerably mesially to the corresponding surface of the first upper molar ; the result of this difference in mesio-distal diameter and in position of the first molars is to bring the distal surfaces of those teeth, which are the terminals, as it were, of the two arches, into the same vertical plane, or even to bring the distal surface of the last lower molar beyond that of the upper (Fig. 1A). In other words, “the greatest efficiency and no waste of material.”

It is the writer's endeavour to show that the same is true of the temporary dentition, although it is succeeded by a greater and more complex masticating apparatus as soon as demanded by the economy of nature for the growing child and then to discuss what effect it will have on the permanent dentition.

Admitting the correlation of the deciduous and permanent dentitions, each, however, considered *per se*, constitutes a unit in itself; the milk set is not concerned with the succssional set and the permanent set is not concerned with its predecessors.

That this fact may be associated with mal-occlusion of the first permanent molars as regards their mesio-distal relationship, the writer believes to be extremely probable, but on the other hand he is unable to offer satisfactory proof which explains by what process in development these teeth ever assume their normal relationship as in the majority of cases they do.

For a few moments consider the occlusion of the temporary teeth; starting with the centrals and going back to the canines the normal condition is similar to that found in the permanent dentition and, speaking comparatively, the size and shape are also similar except that they have greater contour. The tip of the lower canine is exactly between the upper lateral and canine, whilst the distal edge of the cusp of the upper canine occludes with the mesio-buccal edge of the first lower molar; and here the similarity ends because this mesio-buccal edge does not correspond to the mesial half of the tooth as it would in a premolar but only to a portion of the mesial half. The width of that part of the canine over-lapping the lower molar is about one-half the tooth, and this averages 3.3mm., and it only occludes with about one-third of the lower molar.

Now the molars have been reached there is no need to dilate upon the differences between them and their successors, the premolars. Both as regards shape, and size, function and occlusion, premolars may be described as the typically omnivorous tooth, whereas the incisors and canines are of a carnivorous type, and the molars herbivorous. But compare these temporary molars with the permanent teeth of the same name.

That the permanent molars are both the analogue and homologue of the temporary molars there can be no doubt. Their function is similar, all being grinders and of the herbivorous type; their form is similar in outline as regards the crown and often more or less in the arrangement of the cusps (this is true, more especially of the 2nd than of the first temporary molar), and their roots correspond almost exactly, save for the great divergence which is necessary for the developing premolars and, *finally*, the individual and total size of the lower molars is greater than that of the corresponding upper molars.

In this connection it may be mentioned that in a paper recently read in London by Mr. George Northcroft, the author stated that the combined width of the lower temporary molars is, on an average, 1.4 mm. greater than the combined width of the upper temporary molars. In the opinion of the present writer, those figures have not been exaggerated in the least; in fact, he believes the average will be proved still greater—perhaps as much as 2 mm. and has examined cases where the difference has been as much as 4 mm. and 4.2 mm.

The effect of this difference is to bring the distal surfaces of the

last upper and lower molars on the same vertical plane or almost so ; owing to the great convexity of these surfaces it is difficult to say whether they are exactly so or whether the upper one is a little distal to the lower, but the similarity between the two dentitions in this respect is remarkable. (Fig. 1.)

As was said of the permanent dentition may now be said of the temporary :—" The greatest efficiency and no waste of material," and it will be recollected that this greatest efficiency is being considered in only one respect ; it is obtained in the same manner in both cases, *i.e.*, by the distal surfaces of the most distal teeth being in the same vertical plane in so far as convex surfaces may be spoken of in this way ; *i.e.*, each set of teeth is an organ complete in itself.

The anatomical facts essential to the subject of this paper having been enumerated, a closer consideration of the problem its title suggests will be proceeded with :—" The Occlusion of the Temporary Teeth and its bearing on Class II."

Here are two organs : one is to entirely replace the other, yet there must be no cessation of function. How does nature accomplish this ? By a connecting rod, if the phrase may be allowed, and this connecting rod is the four first permanent molars, and they alone because they do replace any of the deciduous teeth and should be erupted before any of them are lost. On the other hand, as soon as they are in place, other and greater changes immediately ensue.

The importance of these four teeth erupting and locking normally need not be further emphasised before this society. But what is of equal import is the question " What is the probability of these permanent molars locking abnormally ? "

It has been shown that, when all the temporary teeth are in place, the distal surfaces of the temporary molars are as near as can be in the same vertical plane, the lower being a shade mesial to the upper. From the figures already quoted and the fact that the average width of the distal half of temporary canines is 3.3 mm., the average distance of the distal surfaces of the second molars from one another is 1.9 mm. The writer believes that when more data has been obtained, it will actually be found to be less than this—little more than 1 mm.—but even these figures will serve the purpose of his argument. The four slides, Figs. 2, 3, 4, 5, show pictorially what it has been attempted to describe both in words, and figures, and it will be noted that the latter scarcely represent the condition in a pronounced enough manner. It is suggested Fig. 2 be taken as typically normal of the temporary dentition.

In Figs. 4 and 5, being the right and left sides of the same skull, there is normal occlusion of the temporary teeth, but in addition the first molars have erupted, but do not, and cannot occlude normally, while the temporary molars occupy the position shown ; the left side is the more distal of the two. Also observe the relation of the mesial surfaces of the permanent molars to one another in this skull and compare them with the mesial surfaces of the first



FIG. I.



FIG. 1A.

TO ILLUSTRATE MR. CHAPMAN'S PAPER

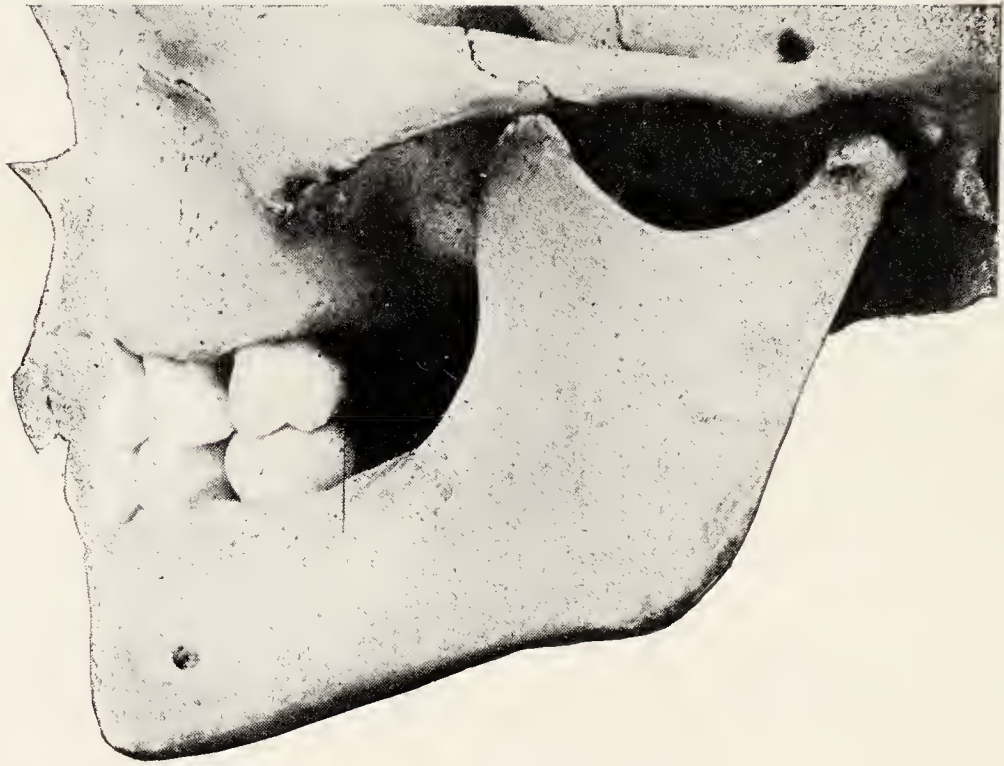


FIG. 2.

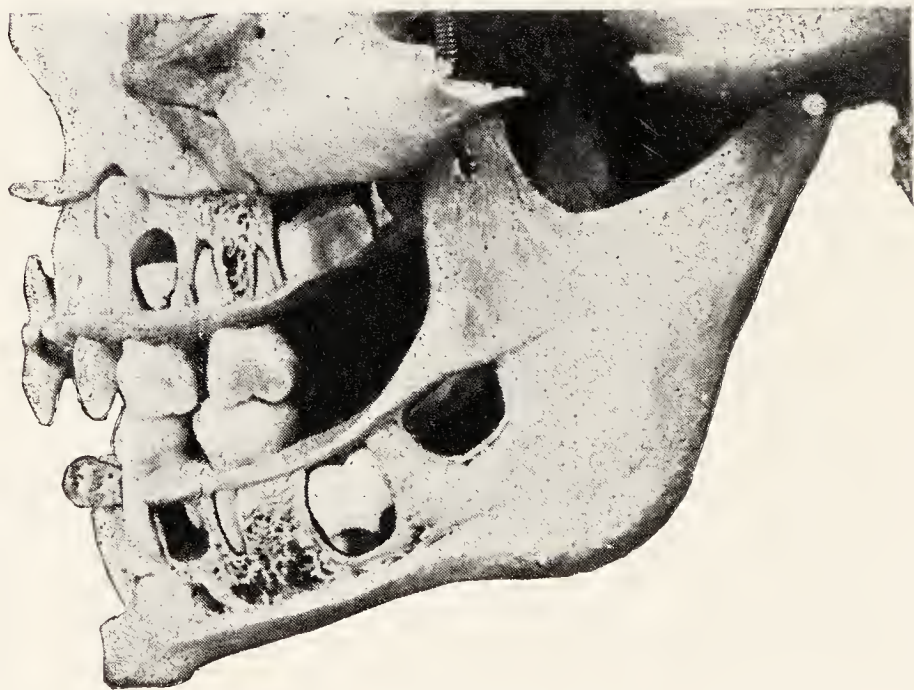


FIG. 3.

TO ILLUSTRATE MR. CHAPMAN'S PAPER.



FIG. 4.



FIG. 5.

TO ILLUSTRATE MR. CHAPMAN'S PAPER



FIG. 6.

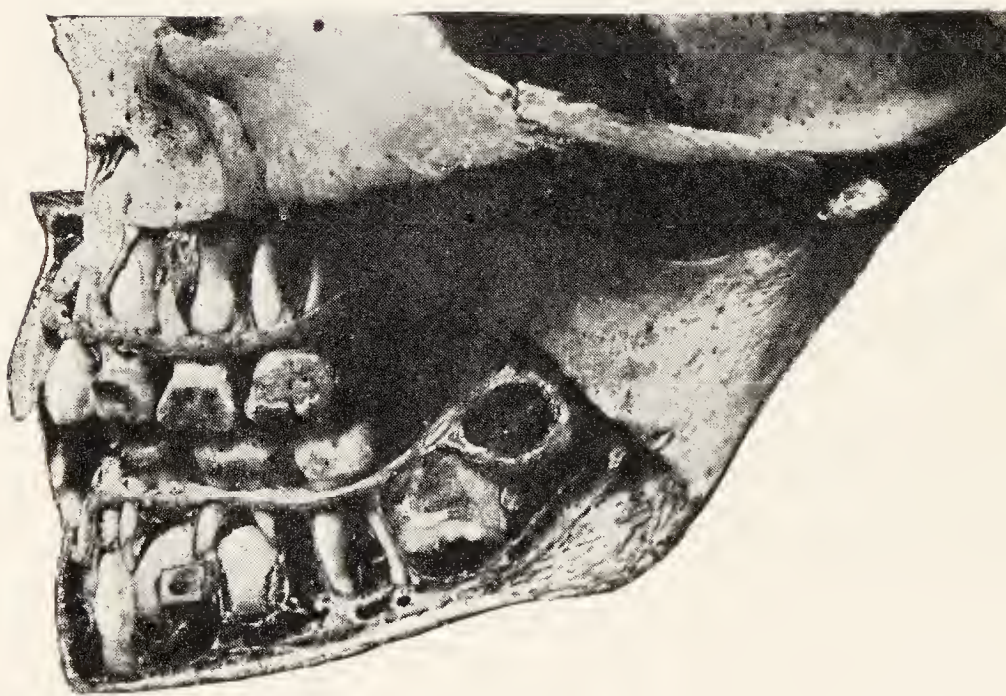


FIG. 7.

TO ILLUSTRATE MR. CHAPMAN'S PAPER

molars in Figs. 1 (taken from the skull of an Englishman) and 1A. Notice particularly how much the mesial surface of the permanent lower molar is in front of the same surface of the corresponding upper tooth and this is normal occlusion as found in adult skulls. Compare Fig. 6 with Figs. 1 and 5 it shows the teeth in distal occlusion, and yet the first permanent lower molar is more in advance of its fellow above than is the case in Fig. 5, which is typical of normal occlusion as far as the temporary teeth are concerned. But is it typical of the temporary teeth when the permanent molars are in position? If this is so, the only compensating factor is that when the temporary molars are shed and replaced by premolars, the lower molar will have a greater distance to move forward because the pre-molars are all very nearly the same size and thus normal occlusion will be established. This answer confronts us with another question—why has this establishment of normal occlusion been delayed so long—till ten or eleven years—and in the meantime the danger of distal occlusion been ever present?

But to return to the temporary molars at five years; the distal surfaces of these teeth are in the same vertical plane as near as can be, the lower being a shade mesial to the upper. This difference is so slight that it is impossible for the first permanent molars to come into position and occlude normally unless some force—shall it be called development?—is at work, impelling the lower jaw forward at a greater rate than the upper is moving. It is a well-known fact that some such force is a factor in the development of the jaws and in the production of normal occlusion and is well shown in Figs. 2 and 4. In Fig. 2, the second temporary molar is seen to occupy the same position in regard to the malar process that the first permanent molar ultimately does as shown in Fig. 4.

If this forward movement as regards the lower jaw is interfered with in any way, distal occlusion of the permanent dentition must result, and it must also result in the case of the very large lower molars mentioned above, though the extent of mal-occlusion may only be half a cusp or even less.

Dr. Angle, in the last edition of his book on mal-occlusion, defines Class II. thus: "When from any cause the lower first molars lock distally to normal with the upper first molars on their eruption to the extent of more than one half the width of one cusp on each side." Dr. Angle here seems to foreshadow the fact that perfect locking of the molars is impossible at the time of their eruption, but *ceteris paribus*, that they will be when the permanent denture is complete, when the pre-molars have erupted, and the developing second molar is pushing the first forward to fill the gap caused by the difference in size between the temporary molars and the pre-molars.

It will now be readily understood that if the lower jaw is at all disturbed in its development and is not moved forward at a rate equal to or even greater than the upper, the risk of distal occlusion occurring is very serious; in fact, there is a great probability of their locking abnormally even though the milk dentition is normal. If any factors are at work causing the upper teeth, more especially the

first permanent molar, to move forward at too great a rate, for example, caries of the upper temporary molars on their approximal surfaces or even the loss of one of these teeth, distal occlusion must inevitably result, because the molars are not yet fully locked and a slight force in the wrong direction—forward in the upper and backward in the lower—will at this time allow the teeth to move and so permit them to lock abnormally.

Therefore, it is suggested that interstitial caries in the temporary teeth of the upper jaw should be treated at once by filling operations to restore or even over-restore, the normal contour, whilst those of the lower should be similarly treated, but without the same desire for excessive contour ; and finally it is suggested that the judicious extraction of the second lower temporary molar is at times desirable to prevent the development of a Class II. case, especially where these teeth are exceptionally large.

Fig. 7 shows a case of distal occlusion of the temporary teeth. There can be no doubt that the cause in this case is very different from the cause brought forward in this paper.

To sum up :—

1. Each dentition is an entity in itself, the molar series of each being, comparatively speaking, the same.

2. The connecting rod between the two dentitions is the first permanent molars.

3. If, on the eruption of the first permanent molars, the temporary dentition is the same as at three years of age, for example Fig. 2, then it is impossible for these teeth to lock normally at once, and there is a probability of their never doing so naturally unless the cusps are specially well developed as in the nervous temperament.

4. During growth the lower teeth move forward with the bone, the mental foramen considered as a fixed point, the upper teeth move through the bone, the malar process being a fixed point.

5. The causes working to produce a distal occlusion of the permanent teeth of the type just described are in no way the same as those producing a distal occlusion of the temporary teeth as shown in Fig. 7. It is possible that the former is acquired and the latter congenital.

6. Treatment to avoid distal occlusion of this type should be adopted as soon as a mal-occlusion is imminent.

7. It remains for practitioners interested in this study and work to decide upon a normal occlusion of the temporary teeth ; whether this normal condition is the same at three years as at eight years or whether it changes with the eruption of the first permanent molars or even later, and if so, how is the change accomplished ? To help in the accumulation of facts all should take models of their little patients at the earliest possible age and continue to do so at regular intervals, say six months, till the permanent denture is complete.

The writer fears his remarks are somewhat disjointed, but if some are urged to express to this meeting their views on, and others to study this question, he will feel they have not been in vain. His best thanks are due to Mr. Badcock and Mr. Northcroft for the use of models and to the Council of the Royal College of Surgeons of Eng-

land for permission to photograph the skulls from which the lantern slides have been made to illustrate this paper ; Fig. 1A has been reproduced from the American Text Book of Prosthetic Dentistry.

DISCUSSION ON MR. CHAPMAN'S PAPER.

Mr. GEORGE NORTHCROFT was sorry he had not had an opportunity of reading the paper before discussing it, but he congratulated the Author on the work he had done, and the excellence of his lantern slides. He was inclined to differ from him in considering the permanent and temporary dentitions as being separate entities ; he thought the temporary dentition and its occlusion controlled the permanent dentition a great deal more than the Author acknowledged. With regard to the distal surfaces of the second temporary molars, he thought that the normal temporary dentition should be not edge to edge, that the distal surfaces should not be in a vertical plane, but rather than the distal surface of the upper molar should overlap the distal surface of the lower molar. At that same time, even if Mr. Chapman was correct, according to Dr. Sim Wallace, the first permanent molars should erupt in normally developed jaws with a space in between their mesial surfaces and the distal surfaces of the temporary molars, and from observations he had lately made, he thought that that probably occurred normally in the upper jaw, but not in the lower jaw. That would allow the first permanent molar to come into normal occlusion at an earlier age than the Author admitted to be possible. The Author described the forward movement of the upper permanent molar, due to caries or the premature loss of a temporary molar, as distal occlusion, in this he was wrong. It was the upper molar that came into mesial occlusion, and it was necessary carefully to distinguish a case where the lower molar was really in distal occlusion and where the upper molar had moved forward and was the offender, and was in mesial occlusion.

Dr. SIM WALLACE said that at the first meeting of the Society, he tried to show why it was that the first permanent upper molar came into correct occlusion with its fellow below, and he had no particular reason for altering his view on that matter. There were three points he gave for thinking that the first upper molar came into proper occlusion with the first permanent lower molar. Firstly, whereas the lower molar erupted practically vertically, or even tilted slightly forward, the upper permanent molar had its crown directed downwards and backwards ; the upper molar came into position with a sort of rotatory motion, so that the cusps were slightly further back than they would be if the tooth came into position directly from above downwards. He believed with Mr. Northcroft that the second upper temporary molar ought to be slightly further back than the corresponding surface of the second lower temporary molar, and that the upper molar should come into position, having a slight space between it, and the second temporary molar. He had not meant it to be inferred that the first permanent lower molar came into position with a space between it and the second temporary molar, but that it actually erupted, touching it, slipping directly along the distal surface of the second lower temporary

molar. The third reason for the correct occlusion occurring immediately the permanent molars had fully erupted, was the fact that the inner or lingual cusp of the upper first molar was situated pretty far back, and came into a correspondingly depression near the middle of the lower permanent molar, and the occlusion was very largely regulated not by the outer cusps, but by the more pronounced inner cusp on the upper first permanent molar.

The PRESIDENT thought the Author and Mr. Northcroft had drawn attention to an important point, that so far as he knew had never been definitely settled ; what people mean when they speak of distal or mesial occlusion, whether they mean the relationship of the lower teeth to the upper teeth or the relationship of the lower jaw to the upper jaw. It seemed to him that a great deal of confusion arose for want of a more definite terminology. Mr. Northcroft pointed out a case where the upper molar, owing to the extraction of the temporary molar in front of it, moved forward, and said that was not to be called "distal occlusion," but "mesial occlusion of the upper molar," therein recognising that the tilting of the teeth had not in any way altered the relation of the jaws, but only the relation of those particular teeth. Mr. Chapman called attention in showing the last slide to the fact that the causation of the distal occlusion of the whole temporary set was quite different from the causation of distal occlusion of the permanent set, where this was owing to the failure of the lower molar to move forward into its proper place.

Mr. CHAPMAN, in reply, said that probably had he been present at the first meeting of the Society, when Dr. Sim Wallace read his paper, he should not have said some of the things he had that evening. With regard to Mr. Northcroft's remarks, taking first the question of separate entities, he began a paragraph in the paper by saying, "Admitting the correlation of the deciduous and permanent dentitions," and he thought that disposed of the point. He did not say right out there was no connection between them. There seemed to be no doubt that each dentition was a unit in itself, functioning separately for a considerable period of time. With regard to the overlapping of the distal surfaces, in order to emphasise that point, he admitted that the distal surface of the second upper temporary molar extended further back than the distal surface of the second lower temporary molar, but not to the extent it did when the permanent teeth were in position. The space between the vertical lines drawn along the distal surfaces of the upper and lower deciduous teeth was not nearly so great as it was when the bicuspid had erupted. With regard to the space between the mesial surface of the upper permanent molar and the distal surface of the second upper temporary molar, he should like to have an explanation why that took place in the upper jaw only, and that in the lower jaw they were in contact. Mr. Turner in the March number of the *Cosmos*, stated that the occlusal surfaces of the upper molars, as they were erupting, were directed downwards and backwards, and the lower ones forwards and upwards, not directly upwards as he had been described in the discussion. Which was right he was

unable to decide. He regretted he had confused the mesial occlusion of the upper permanent molar with distal occlusion of the lower teeth, but it was done only to avoid any further complications in the description. With regard to Mr. Badcock's remarks, in writing the paper, he had presumed that Angle's classification was accepted, and the definition of Class II. he had copied, word for word, from the latest edition of his book. Angle said that "when from any cause the lower first molars locked distally to normal with the upper first molars on their eruption to the extent of more than one half the width of one cusp on each side"—so that Angle did not recognise, as regards classification, the upper teeth being mesial to the lower at all. That was not on account of failure to admit that such a condition might exist, but on account of Angle taking the greater number of cases presenting themselves when formulating a classification rather than laying down an absolute law. As soon as he began to complicate his classification with such things it would be disregarded, as were all others; it must be accepted as it is, and when exceptional cases were found, they must be described. For his own part he had always regarded distal occlusion to be a distal relationship of the lower jaw rather than a distal relationship of the teeth themselves.

The PRESIDENT having thanked Mr. Chapman for his paper, and those gentlemen who had taken part in the discussion, the meeting terminated.

“ PROPORTIONS OF THE NORMAL DENTAL ARCHES ”

(TEMPORARY AND PERMANENT.)

THE British Society for the Study of Orthodontia has appointed a committee to ascertain what work has been done up to the present by way of ascertaining the proportions of the different types of normal dental arches, and applying this knowledge to the treatment of actual cases in practice. It is thought that just as human skulls are classified according to the cephalic index which is based on the measurements of length and breadth, so the study of dental arches, based also on anthropological methods might be of great service as a basis for the more serious study of Orthodontia. The society is, therefore, anxious to ascertain whether any measurements of normal arches have been made with this object in view, and will be grateful for any references to papers which have been published on the subject in any language, or for the names of any who have been occupied in a research of this kind.

The committee would indicate the following as the points upon which they will be glad to have any specific information or statistics either regarding the temporary or permanent arches :—

1. Relation of length of arch to breadth : What were the methods of measurement, and what points were taken to measure between ?
2. Relation of size of teeth to size of arch : What method of determining this correlation was adopted ?
3. Height of palate : Points of measurement used to determine this ?

Any information bearing on this subject, or reference to papers, will be gratefully received by—

G. G. CAMPION,

264, Oxford Road, Manchester.

H. CHAPMAN,

20, Queen Anne Street, London, W.

J. E. SPILLER,

62, Worple Road, Wimbledon.



CASE I (a).

Upper, before and fourteen months after treatment.



CASE I (b).

Lower, before and fourteen months after treatment.



CASE 2 (a).

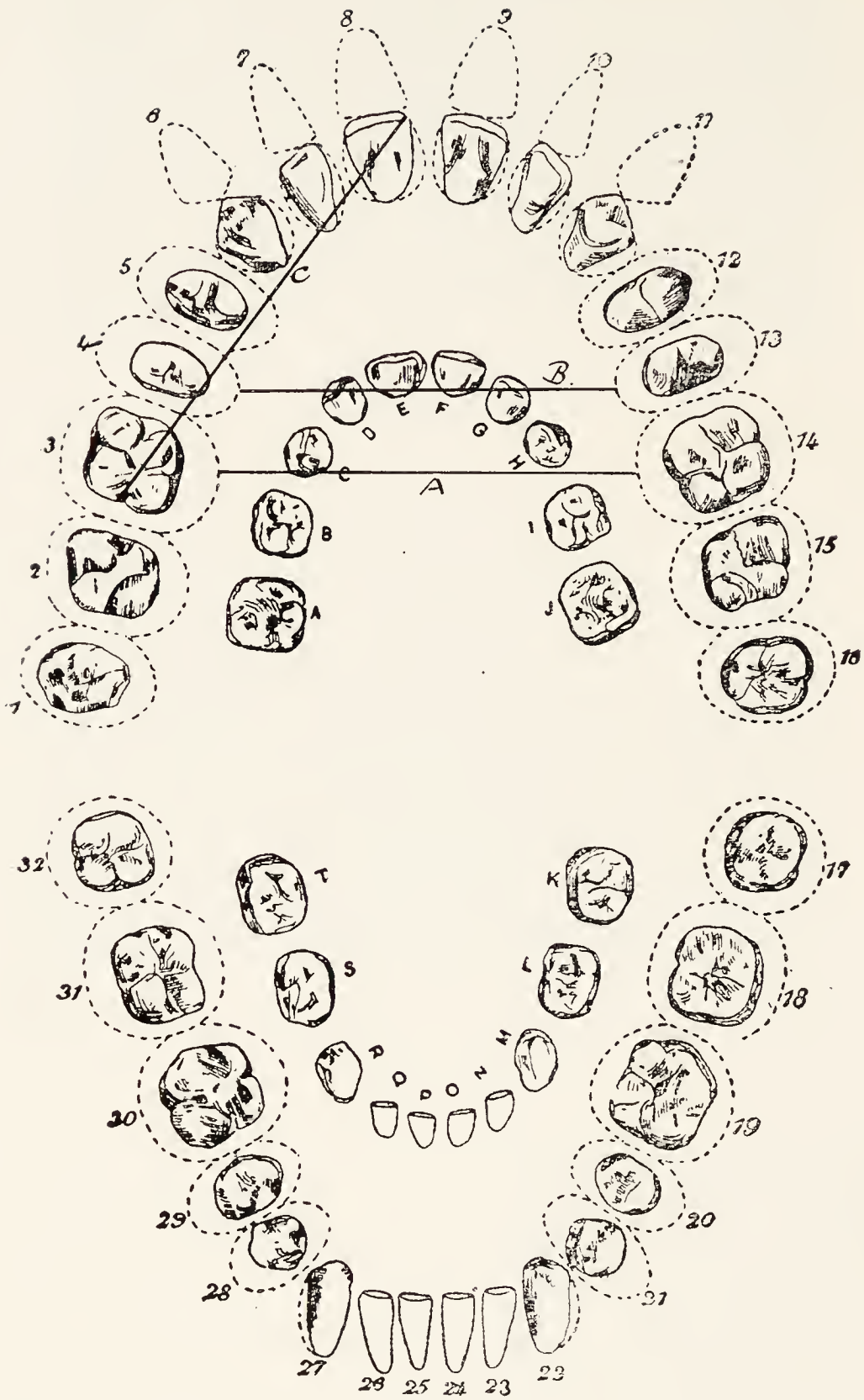
Shows irregularity.



CASE 2 (b).

Shows occlusion.

TO ILLUSTRATE MR. MAURICE'S CASES.



CASE I (c).

Dimension A reduced from $1\frac{11}{32}$ to $1\frac{9}{32}$.
 „ B „ „ $1\frac{9}{32}$ to $1\frac{6}{32}$.
 „ C „ „ $1\frac{11}{16}$ to $1\frac{9}{16}$.

TO ILLUSTRATE MR. MAURICE'S CASES.

ORDINARY MEETING.

AN ordinary meeting for the exhibition of cases was held in the rooms of the Medical Society, Chandos Street, Cavendish Square, MR. J. H. BADCOCK, President, being in the chair.

The minutes having been read and confirmed, the following cases were shown :—

MR. MAURICE'S CASES.

MR. MAURICE said : I wish to shew this evening two cases for which I do not claim any originality, but which, nevertheless, seem to me to be worthy the attention of this society.

1. The first is a case shewing the result of treatment of general overcrowding of both jaws by extraction of four first premolars. The models taken in May, 1907, when the patient was just 13 years of age, shew considerable overlapping of the lower incisors, the lower second premolars have no room to erupt properly, and both upper canines are everted or rotated inwards. Owing to the prominent appearance of the teeth and lower part of the face, I decided to remove the four first premolars. This was done, and I now shew side by side with the models of the upper and lower jaws respectively models of the same taken in July of this year, fourteen months after treatment. The overlapping of the lower incisors has disappeared, the lower second premolars have erupted into correct occlusion, the upper canines have assumed nearly their normal position, and the facial appearance of the patient is much improved. There is very little space between the canines and the second premolars and as the patient is still only 14, I have no doubt that will close up entirely before long. Altogether, I look upon the result as a strong argument for extraction instead of the prolonged wearing of appliances in many cases of overcrowding of the dental arch.

2. The second case is of a different character. We have much discussion from time to time about the causes of irregularities of the teeth and here I have models to shew an irregularity in the making. The patient, a little girl of $9\frac{1}{2}$, has on the left side normal occlusion, and an absence of decay. On the right side the mandibular teeth are in normal positions, and there is no decay, but in the maxilla the first temporary molar is carious mesially and distally to such an extent as to reduce its mesio-distal diameter

by about one-half and the second temporary molar is also badly carious mesially. As a result of this these two teeth have been closed in on one another and on the temporary canine by the erupting first permanent molar to such an extent that that tooth has been able, in its backward and downward path to describe an arc of an abnormally small circle and therefore to erupt a tooth's diameter mesially to its correct position. The resulting condition, commonly called distal occlusion, is really a case of mesial occlusion of the maxillary first molar.

In replying, MR. MAURICE drew attention to the changed dimensions of the first case during the 14 months that had elapsed between the operation and the taking of the recent models. The measurement between the first upper molars taken from the nearest points of their necks had fallen from $1\frac{11}{32}$ inch to $1\frac{9}{32}$ inch; between the second upper premolars from $1\frac{9}{32}$ to $1\frac{6}{32}$, and from the middle of the junction of the occlusal and distal surfaces of the first upper molar to the mesio-incisal angle of the central incisor of the same side from $1\frac{11}{16}$ to $1\frac{9}{16}$ inch.

MR. GEORGE NORTHCROFT'S CASES.

I want to present to-night two cases, which have been treated by two different methods, by way of contrast.

Case 31. Class II. Division 2. (Angle).

Case 82. Class II. Division 1. (Angle).

CASES REPRODUCED FROM CASE BOOK.

1a.				1b.			
Name ..	..	..	Miss I. H.	Name ..	..	..	Miss E. C.
No. of case ..	..	..	31	No. of case ..	..	..	82
Date of birth..	..	..	June, 1890	Date of birth..	..	..	August, 1892
Classification ..	II. 2 (Angle), possibly div. 1			Classification ..	..	..	II. 1 (Angle)
Dentition ..	6 5 4 3 2 1 | 1 2 3 4 5 6			Dentition ..	6 e c 2 1 | 1 2 c d e 6 7		
Mutilation .	Removed 4 | 4, October, 1901			Mutilation .	Too early extraction of c. | c.		
Method of feeding ..	..	..	—	Method of feeding ..	..	..	Bottle fed
Method of breathing..	..	..	Normal	Method of breathing..	..	..	Mouth breather
Method of sleeping ..	..	..	—	Method of sleeping ..	..	..	—
Family characteristics	..	..	—	Family characteristics	..	..	—
Surgical operations ..	..	..	—	Surgical operations ..	..	..	—
Congenital or acquired diseases ..	..	..	Scarlet fever, July, 1901	Congenital or acquired diseases ..	..	..	Rheumatism in 1906
Width of central incisor, &c..	..	..	9.2 m.m.	Width of central incisor, &c..	..	..	8.6 m.m.
Date of first visit ..	..	..	June 1st, 1901	Date of first visit ..	..	..	May, 1904
Date of starting treatment ..	..	..	June 8th, 1901	Date of starting treatment ..	..	..	June, 1904
..	..	..	Abandoned in July, 1901	..	..	..	Spur and plane and biting plate inserted Dec., 1904
Date of first retention ..	..	..	—	Date of first retention ..	..	..	Last biting removed December, 1907.
Date of removal of retention .	..	..	—	Date of removal of retention ..	..	..	26 visits while watching the B. Anchor tag; 19 subsequent
Total number of visits ..	..	..	2	Total number of visits ..	..	..	..
Date.	No. of Model.			Date.	No. of Model.		
				25, V., 1904	82	Imp.	
				8, VI., 1904	82	Put in upper and lower D. bands	
				11, VI., 1904	82	Exam.	
				15, VI., 1904	82	Exam.	



FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.



FIG. 6.



FIG. 7.



FIG. 8.

TO ILLUSTRATE MR. NORTHCROFT'S CASES.

Diagrams Ia. and Ib. show the Orthodontia Case Cards which I have adopted. These contain the details of cases as far as known. In case 31 it will be noticed that owing to the illness of the patient, and removal to the country, treatment by appliances was abandoned, and extraction $4 \mid 4$ resorted to.

Fig. II., case 31, shows the upper jaw before treatment, and III. the right side after extraction. The number of visits involved was only two, the first to take models and come to a decision, the second to operate; the result being left entirely to nature.

This was fairly satisfactory, but it will be noticed, that contraction of the upper jaw remained, and that $\overline{3}$ is in labial occlusion. Also the patient's appearance to the trained eye shows the loss of upper pre-molars.

Figs. IV. and V. show right and left sides after seven years.

I believe that it is only in such cases of Class II. that extraction is at all justifiable, and then in the upper jaw only.

In Fig. VI., case 82, the profile was distinctly bad, extraction would have been worse than useless, as thereby the masticating function would have been reduced to a minimum, both by loss of teeth and faulty position, and no improvement in appearance would have taken place. Intermaxillary traction was used, and watched once a week for six months, a biting plate, and spur and plane attached to $\overline{6} \mid \overline{6}$ were adopted for retention, which continued until $\frac{7}{7} \mid \frac{7}{7}$ had erupted, then the case was considered completed.

The time occupied in treatment necessarily spread over a long period, but the result undoubtedly justified the trouble involved, the appearance and masticating power being all that could be desired, and the teeth free from caries.

Figs. VII. and VIII. show right and left sides after treatment.

MR. M. HOPSON'S CASE.

Little girl of 8 with very marked inferior protrusion, treated with reversed Baker Anchorage. The first effect has been to open the bite, but the lower incisors are already behind the uppers, and the appearance of the child much improved. Present condition of the case transitional and has been four months under treatment. When first seen the articulation was such that the mandible was one mandibular molar anterior to the normal, and at present stage the molars are exactly superimposed. The mandibular first molars have rolled inwards, which largely accounts for the opened bite, and this will be partly corrected when the molars are put in place again.

The PRESIDENT remarked on the value of showing cases that were partly finished.

MR. TURNER said it was a sporting case, and that the rolling inwards of the molars caused the opening of the bite, which could have been accomplished by capping the molars.

MR. HOPSON, in reply, undertook to report the progress of the case from time to time and to have the child skiographed to watch the temporo-mandibular articulation and the obliquity of the angle of the mandible.

MR. J. G. TURNER'S CASES.

Case 1 : Lady aged 25.

A premolar on each side absent from the maxilla and both central incisors from the mandible.

Upper anterior teeth pushed over to left side, probably on account of loss of room in the arch following early extraction of temporary teeth. Condition does not seem to have been improved by extraction of the premolars and incisors mentioned above. Treated by expansion (by plates) till there was room to allow alignment of the teeth in a good arch (Fig. 2) and later by pressing the left central and lateral incisors towards the right by wires fixed to a plate, while the molars and premolars were allowed to fall back to their original positions.

Fig. 1 : Before treatment.

Fig. 2 : Midway.

Fig. 3 : At end of treatment.

Fig. 4 : Shews how far the upper overlap the lower teeth owing to decrease in size of lower arch after extraction of centrals.

Case 2 : A girl, aged 15.

With superior protrusion, inferior retrusion, on the left side of one premolar width, on the right of half a premolar width, and centre of lower arch correspondingly deviated to the left ; internal intercusping of left maxillary with left mandibular cheek teeth. Mandibular arch practically normal.

The maxillary arch was expanded and the incisors retracted ; a retention plate was inserted so as to make a posterior bite of the mandible inconvenient. Fig. 4 shews the bite five months after treatment was begun. This was in November, 1906. The bite remains the same now.

No treatment was adopted for the lower arch except to fill the right lower first molar.

Fig. 1 : Before treatment.

Fig. 2 : Arch after treatment.

Fig. 3 : Bite before treatment.

Fig. 4 : Bite after treatment.



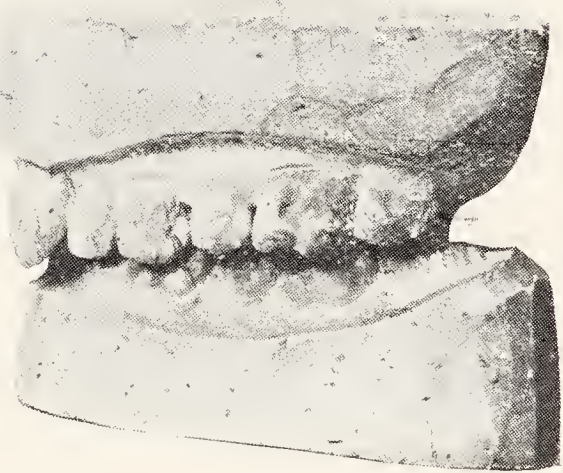
CASE I.
(1) Before treatment.



CASE I.
(2) Midway.

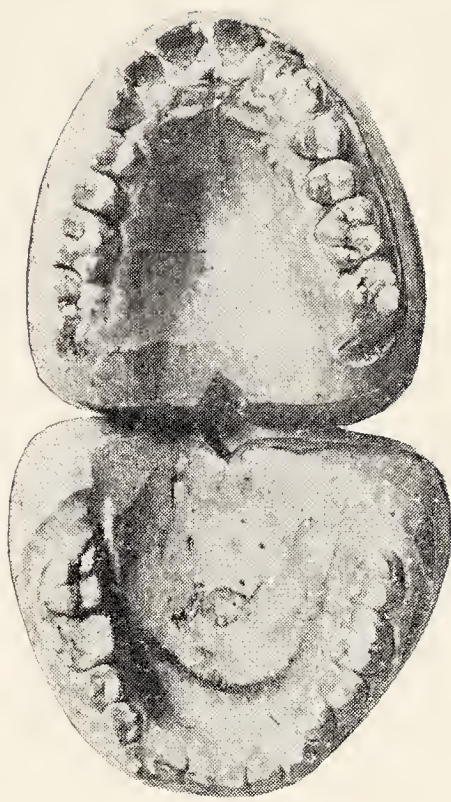


CASE I.
(3) At end of treatment.



CASE I.
(4) Shows upper overlap.

TO ILLUSTRATE MR. J. G. TURNER'S CASES.



CASE 2.
(1) Before treatment.



CASE 2.
(2) Arch after treatment.



CASE 2.
(3) Bite before treatment.



CASE 2.
(4) Bite after treatment.

TO ILLUSTRATE MR. J. G. TURNER'S CASES.

BRITISH SOCIETY FOR THE STUDY OF ORTHODONTIA.

ORDINARY MEETING.

AN ordinary meeting was held in the rooms of the Medical Society, Chandos Street, W., on November 11th, 1908.

Mr. J. H. BADCOCK, president, in the chair.

The minutes of the previous meeting were read and confirmed.

The following gentlemen were ballotted for and duly elected members of the society :—Phillip Scott, L.D.S.Eng. ; T. H. Wilkinson, L.D.S.Eng. ; J. A. Bowes, L.D.S.Eng. ; E. N. Mason, L.D.S.Eng. ; and J. M. Sumerling, L.D.S.Eng.

Mr. H. P. Aubrey signed the obligation book, and was formally admitted a member of the society.

Messrs. Schelling and Hedley Visick were elected auditors for the annual general meeting.

The paper promised by Mr. A. C. Lockett on "The Results of Extraction" having been unavoidably postponed, the meeting was devoted to Casual Communications.

UNDERHUNG TEMPORARY TEETH.

MR. PEYTON BALY exhibited two models of a boy, two years and two months old, who had one supernumerary upper incisor and four incisors inside the lower bite. The models were taken in gutta-percha impressions, while the child was under chloroform. He desired to know from the members the best treatment to pursue.

The PRESIDENT said the condition shown was rather rare, as was the method of obtaining the models. If the chloroform was administered for the special purpose of taking the models, it was quite a new departure.

MR. PEYTON BALY said the chloroform was administered for that purpose.

MR. GEORGE NORTHCROFT asked whether it was thought the case would ultimately turn into one under Angle's Class 3. It would be interesting to know whether the lower jaws had a very open angle, as was usual in Class 3 cases. He believed the president had in his possession a set of models of a Class 3 case of temporary dentition and that was the only other case he had seen.

The PRESIDENT thought the models in his possession could hardly be called Class 3, and they were very similar to those Mr. Baly had shown. The four upper incisors were within the lower incisors,

but the other teeth were in their normal relations in Mr. Baly's models.

MR. J. G. TURNER asked that for the benefit of those who did not know Class 3 from Class 1, some specific description should be given. For his own part he did not know one from the other.

MR. NORTHCROFT said he used the expression Class 3 as applied to the temporary dentition. According to the Angle classification there was no Class 3 in the temporary dentition, but anyone who had read Dr. Angle's book would readily understand what he meant, and he took it that the majority of the members of the society had read that work.

MR. TURNER asked whether Dr. Angle's work was to be made the basis of the Orthodontia Society.

MR. NORTHCROFT said no, but it was the basis of his remarks.

MR. A. C. LOCKETT said he would endeavour to describe the condition of Class 3 for Mr. Turner's benefit. It was a condition in which the lower first permanent molar was in mesial occlusion to the upper permanent molar, and all the teeth anterior to the lower first permanent molar in the lower jaw were in like manner in mesial occlusion. It might facilitate discussion if the Angle classification was placed side by side with any other existing classification which might be found useful, so that discussion may be intelligently carried on by all.

RESULTS OF FIRST MOLAR EXTRACTION.

MR. J. G. TURNER exhibited some models to illustrate what happened after extraction of the lower first permanent molar. It was generally said that the second molar came forward; in fact, there were reams of curious arguments written in various books on orthodontia as to what happened, why it happened, and the results; but the fact was that the lower second molar did not come forward; the bicuspid went backwards and the second molar tilted forward and became twisted inwards. Its long axis, instead of being fairly well antero-posterior, tended to run towards the middle. He showed a model to prove his first contention that when the first lower permanent molar was taken out, the second premolar went backwards. If taken out early enough, the premolar went right back into the body of the bone until it abutted against the second molar and there erupted. One side of the premolar was erupting and the other side was fully erupted right against the second permanent molar. It was carried by the bony growth. Another model he exhibited to show how the premolars went backwards until they occupied the space lost by caries of the first permanent lower molar in exactly the same way that upper molars came forward after partial destruction of the temporary teeth. It was an inverse action entirely. One often saw the crowns of the teeth in contact, and it was said that the second permanent molar had come forward. If skiagrams were taken it would be seen the apices of the roots were still as far back as ever, the lower molar having tilted forward. A premolar might have come backwards, but there was still a large space between the roots. He showed skiagrams taken from a girl showing that the

lower molar had tilted while the premolars had gone vertically backwards. The movement of the premolar was partly due to growth of the bone—there was no other power to move the teeth except some actual growth of bone, what one might fancifully call a bone current carrying the teeth backwards—and partly to the action of the lips and the cheeks, exactly as was seen to result from extraction anywhere else ; the teeth were crushed in until they touched each other and the crowns were in stable apposition.

MR. W. J. MAY exhibited a couple of models bearing on the point under discussion. One model showed that on the extraction of the second temporary molar the first permanent molar had not come forward much—it had twisted a little—but the first temporary molar and temporary canine had fallen back in the mouth. One side showed the normal condition with all the temporary molars in place ; the other side showed the result of extraction. He was sorry he did not have a model of the child taken sometime previously to show what was the condition before. The molar was taken out on account of a bad abscess, and he believed it was the removal of the lower temporary molar that was the main cause of the superior protrusion. He believed that owing to the lower canine falling back the lip got inside the left central, which was much further out than the right central. The child was a mouth-breather, which no doubt added to the trouble.

The PRESIDENT asked whether there was any history of thumb sucking or the use of a comforter ?

MR. MAY said he saw the child eighteen months or two years previously, and then noticed nothing the matter. He simply took out the temporary molar for the abscess and about eighteen months after saw the result.

The PRESIDENT said the falling back of the first temporary molar, and the temporary canine, was very marked after the extraction of the second temporary molar in that case. Mr. Turner's statement as to the impossibility of the second permanent molar moving forward after the extraction of the first permanent molar was very interesting, but was rather difficult to discuss without seeing the skiagrams and models. He admitted to being unconvinced, and he was not at all sure that the principle was of universal application.

MR. G. THOMPSON thought it depended very much on the age at which the teeth were extracted. He had cases in his mind where he had extracted the six-year molars just at the time the molars were erupting, and it appeared to him that the twelve-year molars had moved forward, and there was no perceptible tilting.

MR. GEORGE NORTHCROFT said that Mr. Turner had remarked that the only way he could account for the second premolar being in a backward position against the anterior surface of the second molar was by the growth of bone, *i.e.*, that the tooth floated through growing bone. If that was a permissible argument it connoted the possibility of interstitial growth of bone, otherwise with the growth of the jaw the tooth would be moved in a forward direction. He should be extremely happy to think that interstitial growth of bone was possible as it would make him a good deal more confident

in the results of the movements of some of the teeth that he treated, but he had always been taught that in the jaws there was no interstitial growth of bone.

The PRESIDENT said it appeared to him that Mr. Turner's case was that of a syphilitic patient, and therefore would be hardly a fair case to argue from.

MR. TURNER said the teeth were syphilitic, but it was only one case out of a dozen.

The PRESIDENT said that in syphilitic cases the growth of teeth was frequently abnormal, and not infrequently teeth were missing. Therefore he could not quite accept the particular model as evidence of Mr. Turner's contention.

MR. RUSHTON said that the manner in which teeth appeared to travel through bone in a parallel direction to their fellows was very strikingly exemplified in certain chronic cases of pyorrhœa, where teeth could be seen that had moved a considerable distance. There was no tilting; they were perfectly vertical to the plane of the jaw, and yet they had moved a good way. He knew of a case in which a bicuspid had moved at least a quarter of an inch, and it would be interesting to know how that movement occurred.

With regard to Mr. Baly's case it seemed to him the molar occlusion as far as could be judged from the models, would be perfectly normal, and personally he should do nothing whatever in the case but await developments, keeping the teeth in view until the permanent ones erupted.

MR. TURNER said the cases were picked out at random, and he had a good many more photographs and models to show that the condition was such as he had said, that the pre-molars went backwards. As to the molar coming forward when the first molar was taken out at the erupting period, he did not think that held at all. As far as he could see it made no difference; the lower molar came up into its appointed place and then tilted. He did not quite know what was meant by interstitial growth. If he took it aright, it should not have the power of carrying a thing backwards or forwards; it should be simply like the endogenous growth of a palm tree, leaving each central molecule or cell exactly where it was. There should not be a regular movement of one particular portion of the bone with a hard tooth in it backwards or forwards or in any other direction.

MR. NORTHCROFT said he thought Mr. Turner stated that the teeth went back in growing bone, and he took it the bone was not growing there.

MR. TURNER said that it seemed to him the bone was growing, the models showed the bone grew there, and there was perhaps a need for revising ideas as to the direction of growth in the lower jaw. It appeared to him it was quite possible that the lower jaw did grow backwards, and the movement of the molars from the position of development to the vertical position of eruption entailed a backward movement also. Each molar lay slanting forwards in a converse direction to that of the uppers and partly under the molar in front of it, and there actually had to be a movement backwards to disengage the tooth. As to the syphilitic case,

he could show plenty of others, but that happened to be the first that came to hand. As a matter of usefulness to the Society he suggested a small Committee should be formed to investigate specifically what happened in the case of an extraction of a first permanent lower molar. It was a question absolutely of fact beyond the possibility of dispute.

MR. NORTHCROFT thought it might be of interest to the Society to know that in Witzel's book, noticed a little while ago in THE DENTAL RECORD, on the "Development of the Jaw," an illustration was given of Professor Humphry's historic experiment, which proved that the jaw grew only by additions of bone backwards. The jaw of a pig was taken, and the bone was pierced in the middle and a ring attached in the bone and bent round the back of it. During the growth of the bone the ring was found to cut the bone halfway through, showing that a deposit of bone had taken place backwards, and the ring had gradually crept forward. They then pierced another jaw with two holes, the ring in one case embracing the back of the jaw, and in the other case the forward. In the forward case the ring actually dropped away, showing that the jaw was gradually travelling backwards, and at the back of the jaw the ring was left right in the middle of the bone and a deep crease was formed by the cutting in of the ring. The illustrations proved indisputably what happened in the development and growth of the lower jaw, that the bone was deposited at the back and absorbed away in front. It was an experiment undertaken by Humphry and recorded by Witzel in his book.

EXTRACTION OF PREMOLARS.

MR. HEDLEY VISICK said he had a case showing the result of extraction of the first pre-molars, upper and lower, at the age of eleven, and he exhibited the model. The wisdom teeth erupted at seventeen, and he thought the result of the case was very good indeed. No plate was worn.

MR. RUSSELL BARRETT asked whether there was any irregularity which called for the extraction of the first bicuspid or whether it was done simply to make room.

MR. H. VISICK said the teeth were taken out simply to make room as the mouth was very crowded, and the teeth then arranged themselves in the position shown in the models.

MR. NORTHCROFT asked whether there were any models of the jaws before the age of eleven to show whether the canines were coming high in the arch or not.

MR. VISICK said the models were the only ones he had. As a matter of fact it was his own mouth and naturally at that age he was not very inquisitive on the subject. As far as he remembered, the canines were coming down all right. The upper front teeth were rather prominent and the lower incisors were overlapping each other.

The PRESIDENT said the result from the point of view of occlusion was really quite good, but the difference in the size of the jaw was plainly shown. He felt that if the teeth had been left in both arches would have been much larger.

The Meeting then terminated.

BRITISH SOCIETY FOR THE STUDY OF ORTHODONTIA.

ANNUAL GENERAL MEETING.

THE Annual General Meeting of the Society was held at the rooms of the Medical Society, 11, Chandos Street, London, W., on Wednesday, December 16th, 1908, Mr. J. H. Badcock, President, in the chair.

The minutes of the last meeting were read and confirmed.

The following were ballotted for and elected members of the Society :—Mr. J. G. Fernie, L.D.S.Eng., and Mr. Walter Green, L.D.S.Eng.

The Hon. Treasurer (MR. MELLERSH) presented the balance-sheet.

MR. CARL SCHELLING, as one of the auditors, congratulated Mr. Mellersh on his first balance-sheet, and proposed its adoption.

MR. CHAPMAN seconded the motion, which was carried.

THE HON. LIBRARIAN (MR. SPILLER) presented the following report :—

LIBRARIAN'S REPORT.

I have to report that the library has not made the progress that might have been desired during the past year, as, owing to the infancy of the Society, more important matters have taken precedence. A start has been made, however, with three books, viz. :

“Essay on Irregularity of the Teeth.” (Dr. J. Sim Wallace). Presented by the author.

“An Atlas of Skiagrams.” (Professor Symington and Dr. J. C. Rankin.) Presented by Mr. Rushton.

“Development of the Human Maxillary Bones and Teeth.” (Karl Witzel.) Presented by Mr. Rushton.

I take this opportunity of thanking the donors for their kindness, and of inviting other members to follow their example. The question of the purchase of books, and the housing of them, is now before your Council, and it is hoped that it may soon be possible to report substantial progress.

Letters inviting exchange of Transactions have been sent to the known Societies of Orthodontia, and a number of copies of our own transactions are being kept.

I should be pleased if members would submit the names of books which they think should be purchased for the library.

On the motion of MR. CHAPMAN, seconded by MR. GEORGE THOMPSON, the report was adopted.

In the absence of the Curator, MR. HEDLEY VISICK presented the following report on behalf of the Curator :—

CURATOR'S REPORT.

The Museum of the Society is an established reality, although up to the present its size has not necessitated any anxiety over the housing problem.

We have to thank Dr. E. A. Bogue, of New York, for a very interesting series of casts illustrating treatment of irregularities, including casts of the first case in which the "Baker Anchorage" was employed.

With your permission I would suggest that the most valuable acquisition to the Museum would be a series of casts of a normal mouth, showing the sequence of dentition from the eruption of the first tooth to the completion of the permanent set.

The formation of such a series will require much patience, but it is encouraging to know that at least two of our members (Dr. Sim Wallace and Mr. Rushton) are engaged in this task.

Of scarcely less value would be a series of casts of an abnormal mouth, showing the growth of an irregularity, but the member who contributes such a series must be prepared for much adverse criticism.

Casts illustrating methods of treatment and the permanent results thereof, would be very welcome, but unless accompanied by photos of the face are very materially reduced in scientific value (especially in Angle's Classes II. and III.).

Specimens of appliances used in tooth movements, accompanied by actual results, would be of much interest.

Finally, I do not think I shall be accused of rashness, if I say that the Society will cheerfully make room in the Museum for any number of skulls with well-preserved jaws, showing either normal or abnormal occlusion.

On the motion of MR. GEORGE NORTHCROFT, seconded by MR. RUSHTON, the report was adopted.

ELECTION OF OFFICERS AND COUNCIL.

According to the bye-laws two Scrutineers of the ballot had to be chosen by the President from six nominations. The following two gentlemen were drawn to act as Scrutineers—MESSRS. PIDGEON AND CHAPMAN.

THE PRESIDENT read the bye-laws governing the election, and stated it had been suggested that in the future, Bye-law XX. should be added to the foot of the nomination form, so that members might know it was within their power to nominate other candidates than those on the list. He also ruled that balloting papers might be returned by post.

Replying to Mr. Schelling, the President ruled that it was not in

order for a member to place balloting papers in the ballot box on behalf of other members.

The ballot was then declared open, and remained open for one hour. At the conclusion of the hour the Scrutineers reported that the following officers and councillors had been elected :—

PRESIDENT : Mr. George Northcroft.

VICE-PRESIDENTS : Dr. Sim Wallace, Mr. Montague F. Hopson, Mr. George Campion.

SECRETARY : Mr. A. C. Lockett.

TREASURER : Mr. W. Francis Mellersh.

CURATOR : Mr. Hedley Visick.

EDITOR : Mr. Rushton.

LIBRARIAN : Mr. Spiller.

COUNCILLORS : Mr. E. R. Tebbitt, Mr. H. Baldwin, and Mr. A. E. Rowlett.

ALTERATION OF BYE-LAWS.

Some slight alterations to two of the Bye-laws were, after some discussion, passed unanimously.

SUGGESTED ALTERATION OF NAME OF SOCIETY.

Attention having been drawn to the etymological defectiveness of the word "Orthodontia," the opinion of members was invited as to the possibility of substituting for it, where it occurred in the Bye-laws, some other and more correct term. There was considerable discussion, and various suggestions made, the balance of opinion appearing to be in favour of retaining the present word, although the word "Orthodontic" found considerable support. It was ultimately decided, however, to postpone the further consideration of the matter.

VALEDICTORY ADDRESS.

THE PRESIDENT then delivered his Valedictory Address.

I RISE to take my leave of you, as your President, with mingled feelings; regret, for you have made my office a very pleasant one; pride, in that our Society has grown and flourished in this, its first year, beyond the most sanguine forecast of its founders; and satisfaction in the knowledge that I shall be succeeded by Mr. Northcroft, than whom there is amongst us no man more able or more zealous.

The past year has been most successful. We began with 42 original members, we had reckoned on 20 or 30 at most, and 28 have been added to our numbers. Three only have resigned, and they because change of residence or engagements made it impossible for them to come to our meetings. The average attendance has been high, and includes several members who live long distances from London.

More satisfactory still, we are not composed of men of one idea, or one school of thought, with a narrow outlook and a limited vision, and are in no danger of believing that the science and art of Orthodontia are bounded by the narrow limits of the dental arches.

Looking for the moment beyond our own Society into the world of orthodontia at large, I am inclined to think that during this last

year the horizon has receded, that orthodontists are turning from the smaller matters of methods of treatment, mechanics and technique to the larger questions of normal growth and development and their bearing on etiology and pathology. Neither am I without hope that the formation of this British Society for the Study of Orthodontia has had some influence in bringing this about.

The subjects of our meetings have been varied and interesting, comprising two demonstration meetings, one clinical evening and papers by Dr. Sim Wallace on "Science and Empiricism in Orthodontia"; Mr. Herbert Tilley on "The Relationship of Nasal Obstruction in Children to Defective Development of the Jaws"; Mr. Chapman on "The Temporary Dentition in Relation to Cases of Distal Occlusion."

Moreover, a strong Committee has been at work upon the "Proportions of the Normal Dental Arches," and will present to you an interim report in February next.

To-night another Committee has been appointed to determine, if possible, the causes of the phenomena noticed in cases of distal occlusion.

We have also the nucleus of a museum, for which we are gratefully indebted to the kindness of Dr. Bogue; of a library chiefly contributed by our Editor, Mr. Rushton; and of a collection of lantern slides for the purpose of lending to members who may wish to make use of them. We hear, too, that stimulated by our example a similar Society is about to be formed in Birmingham. We wish it every success, and if we can be of service to it in any way, I know that I may promise our support.

So much for the past. And what of the future?

If you keep your enthusiasm, catholicity and breadth of outlook, I think you may safely leave the future to take care of itself.

And now, gentlemen, I have to thank in your name and my own, your officers and councillors for their part in helping our Society forward this year. Your interest and support have supplied the driving power which they have directed. They have worked whole heartedly. Personally I have to thank you for the support you have so readily afforded me, and them for their ever ready help.

Particularly I would mention your Hon. Sec., who is indefatigable, and on whom the brunt of the work falls, and your Treasurer, who have spent many evenings on our business. To Mr. Mellersh we are also indebted for the use of his excellent lantern and his own services as lanternist. After these gentlemen the hardest work falls on our Editor.

Our curator, Mr. Hubert Visick, has resigned by reason of illness. We accept his resignation with regret and tender him our sincere sympathy in the sore trial and calamity which has befallen him, and greatly hope that before many months are past we may see him again amongst us. I ask you to pass a vote of thanks to your officers and councillors by acclamation; and so, with thanks for your indulgence and apologies for my own shortcomings, I take my leave of you to-night, full of hope for your future, and hand



TO ILLUSTRATE MR. NORTHCROFT'S REMARKS.

over my responsibilities to your President-elect in the comfortable assurance that to no one could the destinies of this infant Society be more safely entrusted.

MODEL CABINET.

MR. MELLERSH exhibited a case for the storage of orthodontia models, an adaptation of a sectional book-case made by the Globe Wernicke Company. The case was fitted with glass shelves, and could be arranged to fit upon a table.

A CASE FOR OPINION.

MR. MELLERSH also brought forward models of a case of irregularity in a patient aged fourteen, who was under treatment by a practitioner in London. The suggestion of that practitioner was to extract certain teeth which were marked, the lower right central, the second premolar on the left-hand side, and the first pre-molar on the right-hand side, but he would be grateful for the opinion of the Society as to treatment.

THE PRESIDENT pointed out that two lower premolars had been lost already.

MR. SPILLER felt inclined to extract both upper first bicuspid believing that it would simplify the subsequent treatment. Probably also one lower central might be extracted as the lower arch was very crowded.

MR. RUSHTON pointed out that the second bicuspid was a mere wreck filled with cement filling, and it would be better to extract that tooth rather than the first bicuspid. He thought there would be a correct occlusion minus the bicuspid. He would not take out a lower incisor.

MR. PIDGEON said the extraction of a lower incisor would diminish the arch, and the lower arch really required expanding.

MR. CHAPMAN thought the models exemplified the evil of extraction. It was a case of a Class I, and if the bicuspid had been allowed to remain the treatment would have been comparatively simple. Now two bicuspid had to be removed from the upper jaw to correspond with the loss in the lower, and the treatment involved in getting the other teeth back into those spaces would be extremely great, whether the first or second bicuspid was removed. He thought there could be no justification for removing the lower incisor.

MR. SCHELLING thought no good could be done by extraction and ordinary pulling back. Unless the patient wore a biting plate he did not think anything could happen. The plate should be sufficiently thickened to take the bite of the lower incisors until sufficient daylight could be seen between the upper cutting edge of the lower incisors and the palate of the upper jaw before attempting to direct anything backwards.

HUMPHRY'S EXPERIMENT IN ASCERTAINING THE GROWTH OF THE JAW.

MR. GEORGE NORTHCROFT exhibited a slide of one of the illustrations appearing in Witzel's new book as he thought they were very valuable, and might be new to some of the members. The experi-

ments were carried out by Humphry, after Hamel's ring experiment on the lower jaw. He first of all tied a metal wire round the ascending ramus of the lower jaw of a pig aged thirteen weeks. It was killed after three and a half months: the ramus had doubled in breadth, but the anterior part of the ring had become loose, and, backwards, the ring was buried more than an inch into the bone showing that the jaw was developing backwards. In the second experiment, he drilled a hole through the jaw of a ten-weeks-old pig, and attached two rings, one round the front and one round the back. After a month the anterior ring was found loose, the posterior one again buried in the jaw.

Lastly two holes were made in the ramus of a pig fifteen weeks old, close to the anterior and posterior margins of the bone. After three months the front ring had entirely disappeared, and the posterior ring again marked how the jaw was growing backwards.

THE PRESIDENT expressed the thanks of the Society to Mr. Northcroft for the striking illustrations, which, he thought, were new to most of the members present.

DR. BOGUE'S MODELS.

THE SECRETARY exhibited a series of lantern slides of the models recently presented to the Society's Museum by Dr. Bogue, and also the models themselves.

THE PRESIDENT said the cases were particularly interesting, as showing the result after a number of years, but it seemed to him they would be more valuable still had they been accompanied by photographs of the face. The man who would take the trouble to obtain a series of models accompanied by photographs, extending over a period of years, and including some years after treatment had been finished, would render great service to orthodontic science. One was sometimes doubtful about the after results, especially in cases of Class 2 where, in order to bring the teeth into their normal relation in the arch, the arch had to be expanded and the teeth tilted out from the jaw base. It was of the utmost importance to know how far growth of the body of the jaw would follow that operation. If it followed it enhanced the value enormously, but if growth did not follow then it would seem very much wiser to treat by extraction. In Dr. Bogue's models, with the exception of the case of Mr. Baker, the irregularities were very small, and in one or two instances there was reason for wondering whether the result might not have been much the same if no treatment at all had been undertaken. The case of Mr. Baker was evidently one where well-marked distal occlusion had been cured. He tried to discover from the models what had happened with regard to the upper incisor teeth, whether the roots had been carried forward into their normal position, but he was not able to find out anything.

MR. SPILLER said the cases raised the question of the best age for treatment. Experts said that the younger the patient was treated the better, because the teeth came into their places more easily, and a better result was obtained on account of better bone formation. But there was a difficulty in starting a case at seven years old, because

the case could not be said to be finished until the permanent teeth had erupted, and until the bicuspid and canines had come down. The question of age of treatment was always a difficult one ; whether it was better to start the case early and probably have to abandon treatment after a year or two or let the case drift, and take it on later.

MR. GEORGE NORTHCROFT said that in the course of his studies he had noticed the extraordinary disparity of age at which the various teeth erupted ; in fact, he was beginning to wonder where on earth the data was obtained for the assertion that certain teeth erupted at certain times. It was reckoned that the second molars came up at about twelve years of age, but often they did not. Similarly a premolar was expected to erupt within a year of its normal time, but it did not do so. Conclusions were upset, and promises to parents of patients brought to nought. In speaking to the parents now, he told them to look on a severe case as being comparable to a patient suffering from rickets or spinal disease, and having to wear appliances for some years, and their child as delicate from the dental point of view, and needing constant supervision. He quite appreciated Mr. Spiller's difficulty, and thought it was necessary to endeavour to invent some method of allowing the treatment to run on. The more widely the subject was studied the greater became the necessity of referring the patients to other practitioners, but at present their science was in such a very muddled condition, and things so indefinite that it was often dangerous for a patient leaving the district to place himself in another practitioner's hands. That difficulty would be entirely overcome by the formation of similar societies throughout the British Isles.

THE PRESIDENT said the age difficulty was one that all dentists felt, but he was coming to believe that the most suitable age for the treatment of Angle's Class 2 cases was when the premolars were in active eruption. If one began earlier it meant that the patient had to wear apparatus for a very long time.

MR. NORTHCROFT asked which premolar ?

THE PRESIDENT said as a rule one premolar was not fully erupted, and in occlusion until there was some signs of the other. With regard to Class 1 cases he had in mind to treat them earlier. It seemed expansion of the arches could be more readily effected and more efficiently while the patient was very young, and the difficulty of retention was very much lessened.

MR. NORTHCROFT asked whether the President used expansion plates in the cases of temporary teeth.

THE PRESIDENT said he did.

MR. NORTHCROFT preferred it in his own practice.

THE PRESIDENT said that sometimes he used vulcanite plates, and sometimes little wire plates, using generally a removable apparatus rather than an irremovable one.

VOTE OF THANKS.

MR. HOPSON moved a vote of thanks to the President for the most able manner in which he had discharged the duties of the chair during his year of office. He felt the Society could not have made

a better start than it had, and that very excellent start had been in no small measure due to the President, and the manner in which he had led the Society along the way.

The resolution was carried with acclamation.

THE PRESIDENT briefly returned thanks, and the meeting adjourned.

THE BRITISH SOCIETY FOR THE STUDY OF ORTHODONTIA.

HON. TREASURER'S STATEMENT OF ACCOUNTS, DECEMBER, 1907, TO NOVEMBER 30TH, 1908.

Cash received in Subscriptions	...	..	..	£	s.	d.
				64	1	0
<hr/>						
	Cheque Book	...	...	...	2	1
	Medical Society of London, Rent	...	...	...	9	19
	Reporting	...	...	...	7	7
	Printing...	...	...	...	10	10
	Hughes and Co., Lantern Accessories	...	...	...	2	2
	Hire of Tables	...	...	...	12	0
	Refreshments	...	...	...	4	10
	Sundry Expenses	...	...	...	6	6
	Hon. Secretary's Petty Cash	...	...	...	1	14
	Hon. Treasurer's Petty Cash	...	...	...	1	0
	Balance	...	...	...	25	16
					2	
					£64	1 0

HON. TREASURER'S PETTY CASH ACCOUNT, DECEMBER, 1907, TO NOVEMBER 30TH, 1908.

March 18.	To Cheque	£	s.	d.
July 10.	"	10	0	1
Nov. 13.	"	5	0	3
		5	0	11
					£1	0 0	

We have examined the books and vouchers, and certify the above statement of accounts correct.

(Signed) CARL SCHELLING,
HEDLEY VISICK,
Hon. Auditors.

